COPY

No. 221

# In the Supreme Court of the United States

OCTOBER TERM, 1934

UNITED STATES OF AMERICA, INTERSTATE COMMERCE COMMISSION, ET AL., APPELLANTS

*v.*

THE BALTIMORE & OHIO RAILROAD COMPANY ET AL., APPELLEES

BRIEF FOR THE UNITED STATES AND INTERSTATE COMMERCE COMMISSION

NOVEMBER 1934.

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# In the Supreme Court of the United States

OCTOBER TERM, 1934

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UNITED STATES OF AMERICA, INTERSTATE COMMERCE Commission et al., appellants

*v.*

THE BALTIMORE & OHIO RAILROAD COMPANY ET AL., appellees

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*APPEAL FROM THE DISTRICT COURT OF THE UNITED STATES FOR THE NORTHERN DISTRICT OF OHIO, EASTERN DIVISION*

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**BRIEF FOR THE UNITED STATES AND THE INTERSTATE COMMERCE COMMISSION**

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## OPINIONS BELOW

The opinion of the specially-constituted District Court (R. 207) is reported in *Baltimore & O. R. Co.* v. *United States et al.*, 5 F. Supp. 929. The report of the Interstate Commerce Commission (R. 50) is reported in *A. Johnston, Grand Chief Engineer of Locomotive Engineers, et al.* v. *Atlantic Coast Line Railroad Company et al.*, 190 I. C. C. 351.

## JURISDICTION

The final decree of the District Court was entered February 5, 1934 (R. 224). Petition for appeal was filed March 5, 1934, and allowed the same day (R. 225, 227). The jurisdiction of this Court is founded upon the Urgent Deficiencies Act of October 22, 1913 (c. 32, 38 Stat. 210, 219; U. S. Code, Title 28, Secs. 45 and 47a, Suppl. III), and Section 238 of the Judicial Code as amended by the Act of February 12, 1925 (c. 229, 43 Stat. 936, 938, par. (4); U. S. Code, Tit. 28, Sec. 345). In compliance with Rule 12 of the rules of this Court, appellants submitted their statement as to jurisdiction on appeal and the Court entered an order on October 8, 1934, that probable jurisdiction had been shown.

## QUESTIONS

1. Whether the Commission, in entering into a proceeding upon complaint of railroad employees under the Locomotive Boiler Inspection Act (U. S. C., Tit. 45, Secs. 22–34) and therein amending its regulations under said Act so as to prescribe the installation of power reverse gear on new locomotives, and on existing locomotives (above specified weights) not already so equipped,[1] acted beyond the scope of its authority.

[1] Nearly one-half of the locomotives subject to the Act are now equipped with power reverse gear. The time specified for the installations is when the locomotives are shopped for "class 3", or heavier, repairs and, in any event, before January 1, 1937. The order applies to locomotives *used* in road or switching service (R. 61). As said by the Com-

2. Whether the Commission, in making said amendment, acted arbitrarily and unlawfully by refusing to consider and give legal effect to pertinent, substantial and uncontradicted evidence, by reaching conclusions and acting contrary to the indisputable character of the evidence and by entering a report and order "unsupported and unwarranted by any substantial evidence." (R. 223, 224.)

## STATUTES INVOLVED

The statutory provisions involved are set forth in the Appendix.

## STATEMENT

### Nature of Appeal

This is a direct appeal by the United States, the Interstate Commerce Commission, the Brotherhood of Locomotive Engineers and the Brotherhood of Locomotive Firemen and Engineers from a final decree (R. 224) of the District Court for the Northern District of Ohio, Eastern Division, sitting as a specially-constituted three-judge court, permanently enjoining and setting aside an order of the Commission.

### The Order in Question

The Commission's order (R. 61) was entered on January 5, 1933, in a proceeding entitled Docket No. 24050, *A. Johnston, Grand Chief Engineer of the*

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mission (R. 59) "A large number of the locomotives equipped with hand reverse gear are now set aside awaiting disposition and will never again be used."

*Brotherhood of Locomotive Engineers* v. *Atlantic Coast Line Railroad Company et al.*, 190 I. C. C. 351. The order amended rule No. 157 of the Commission's rules, theretofore established under the Boiler Inspection Act (U. S. Code, title 45, sections 22–34), by prescribing that steam locomotives built after April 1, 1933, should be equipped with power-operated reverse gear and that, as to locomotives theretofore built and not already so equipped, such gear should be installed on those used in road service weighing 150,000 pounds or more on driving wheels, and on those used in switching service weighing 130,000 pounds or more on driving wheels, such installation to be made the first time the locomotives were shopped for so-called Class 3 repairs, or heavier, and, in any event, prior to January 1, 1937. The amendment also prescribed that power reverse gear, operated by air, should have a suitable steam connection to enable use of steam as an auxiliary in case of air failure.

In terms the Commission's order read as follows:

> It is ordered, That rule No. 157 of the rules and instructions for the inspection and testing of steam locomotives and tenders approved and established in accordance with the act of February 17, 1911, as amended, be, and it is hereby, amended to read as follows:
>
> 157. *Reverse gear.*—Reverse gear, reverse levers, and quadrants shall be maintained in a safe and suitable condition for service. Reverse lever latch shall be so arranged that

it can be easily disengaged, and provided with a spring which will keep it firmly seated in quadrant. Proper counterbalance shall be provided for the valve gear.

(a) All steam locomotives built on or after April 1, 1933, shall be equipped with a suitable type of power operated reverse gear.

(b) All steam locomotives used in road service built prior to April 1, 1933, which weigh on driving wheels [2] 150,000 pounds or more, and all steam locomotives used in switching service built prior to April 1, 1933, which weigh on driving wheels 130,000 pounds or more, shall have such power-operated reverse gear applied the first time they are given repairs defined by the United States Railroad Administration as class 3 [3], or heavier, and all such steam locomotives shall be so equipped before January 1, 1937. This paragraph shall be effective on locomotives turned out of shops on and after July 1, 1933.[4]

(c) Air-operated power reverse gear shall have a suitable steam connection with the

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[2] Weight on driving wheels means the weight of a locomotive in working order that is supported by the coupled driving wheels when it rests on a straight and level track, as defined in the locomotive Cyclopedia.

[3] Class 3 repairs as defined by the United States Railroad Administration are as follows: Flues all new or reset (superheater flues may be excepted); necessary repairs to firebox and boiler; tires turned or new; general repairs to machinery and tender.

[4] The effective date named in paragraphs (b) and (c) was fixed by the modifying orders set forth in paragraph VIII, page 13 of the petition herein. (R. 9.)

> operating valves conveniently located in the cab of the locomotive and so arranged and maintained that in case of air failure steam may be quickly used to operate the reverse gear. This paragraph shall become effective July 1, 1933.

This order of January 5, 1933, was made by Division 6 of the Commission, which consists of three members. Petitions of the carriers for reargument and reconsideration were denied by the entire Commission on April 3, 1933.

**Proceedings Before the Commission**

The controversy had its inception in a complaint (Ex. A to the Petition, R. 25), filed on November 10, 1930, on behalf of the Brotherhood of Locomotive Engineers and the Brotherhood of Locomotive Firemen and Enginemen, under the Boiler Inspection Act, namely, the act of February 17, 1911, entitled "An Act to Promote the safety of employees and travellers upon railroads by compelling common carriers engaged in interstate commerce to equip their locomotives with safe and suitable boilers and appurtenances thereto" (36 Stat. 913), as amended March 4, 1915, so as to "apply to and include the entire locomotive and tender and all parts and appurtenances thereof." (38 Stat. 1192), and as further amended in various particulars June 7, 1924. (43 Stat. 659; U. S. C., Tit. 45, Secs. 22–34.) By said complaint it was alleged in substance that the use by the defendant carriers of locomo-

tives, equipped with hand-operated reverse gears instead of power-operated reverse gears contravened the prohibitions of the said Boiler Inspection Act, in that whereas, on the one hand, power-operated reverse gear has been developed and is in use on a large number of locomotives "which is practical, suitable and safe to use", on the other hand, hand-operated reverse gear is improper, unsuitable and unsafe, and the use thereof unnecessarily endangers the health, comfort, and general welfare of the engineers and firemen, and subjects them and other employees, the travelling public and travellers on the highways, to unnecessary peril to life or limb in particulars specified in the complaint. The Commission was asked to prescribe appropriate rules and regulations for the equipment of all steam locomotives with power reverse gear or other devices adequate to protect the employees upon said locomotives from unnecessary peril to life or limb and to make such other and further orders in the premises as it may consider proper.

Following the filing of answers by the defendants, the matter was assigned for hearing in various parts of the United States, and a total of 337 witnesses, whose testimony covered 6,491 pages of the record, were heard. Fifty-five days were devoted to the taking of testimony. One hundred and nine exhibits, many of them voluminous, were also received. Of the witnesses, 74, whose testimony

covers 1,668 pages, appeared for complainants, and 263, whose testimony occupies 4,823 pages, appeared for defendants. Briefs and exceptions to the proposed report of the examiner were filed by complainants and defendants, after which the matter was orally argued before the Commission. On January 5, 1933, the Commission issued its report and order (Exhibit C to the petition, R. 50).

Steam locomotives consist of a boiler and engine mounted on a frame supported by wheels which are turned by the engine. The boiler contains water and has a firebox forming part of it in which fuel is burned to supply heat to the water and convert it into steam. The steam passes through the throttle valve, thence through pipes to the steam chests, in which valves operated by various forms of valve gear, automatically admit it alternately to each end of the cylinders and exhaust it therefrom into the atmosphere through the exhaust pipes and stack. The force of the steam moves the piston, piston rod, and crosshead back and forth. One end of the main rod is connected to the crosshead by a wrist pin. The other end of the main rod is connected to the crank pin on the driving wheel. As the crosshead moves in the guides the reciprocating motion of the piston is thereby changed into the rotary motion of the driving wheels.

The valve gear is the mechanism by means of which the slide valves or piston valves are operated for the purpose of admitting steam to and exhaust-

ing it from locomotive cylinders. Valve gears are so arranged as to allow steam to be cut off at any desired point in the stroke of the piston, and admit steam to either end of the cylinders in order to run the locomotive either forward or backward. It enables the engineer to work the locomotive at capacity by admitting steam into the cylinders during the whole or nearly the whole of the stroke of the pistons, or, when less power is required, to use the steam more economically by admitting steam into the cylinders during a portion of the stroke and working it during the remainder of the stroke of the pistons. The alternate movement of the slide valves, admitting steam into one end and the other of the piston cylinders—a movement which must be coordinated with the movement of the piston—is imparted by the eccentric rods attached at one end to the driving wheels and through other parts of the mechanism to the valves. (R. 51, 52.)

The reverse gear is the mechanism by means of which the engineer operates the above-described valve gear. The hand-operated reverse lever consists of a steel bar (six to eight feet in length) located alongside the engineer's seat box in the cab. It is pivoted to the frame of the locomotive below the floor of the cab, extends up through a slot in the floor and is arranged to move along an arched quadrant (about four feet in length) which is fastened to the floor and on whose upper surface notches are cut, in any one of which the lever may be

latched. The latching of the lever in the desired position, or its unlatching, is accomplished through a spring device at the handle of the lever and somewhat like that on an automobile emergency brake. To said lever, at about the level of the floor, there is connected the *reach rod* extending forward through the cab and alongside the boiler to what is known as the *tumbling shaft*. The latter is a steel bar that extends across and beneath the boiler, which is connected on each side of the boiler with the valve motion mechanism above described. (R. 238, 239.)

On locomotives equipped with hand-operated reverse gear the engineer moves the reach rod and other parts of the reverse gear, as well as the valve gear, by moving the reverse lever in the cab. Some locomotives are equipped with a screw and wheel connected therewith for the purpose of moving the reach rod, the wheel being turned by hand. About 97 per cent of the manually-operated reverse gears are of the hand lever type and the remainder of the screw and wheel type. (R. 53, 238, 266, Exhibit 10.)

An engineer, operating with manual reverse, must move all, or (depending on type) much of, the reverse gear and valve gear mechanisms. Their weight on a medium sized engine is about 2,000 pounds. (R. 238, 1296.) To assist him there is a counterbalance spring affixed to the tumbling shaft. Friction between the numerous parts, as well as the weight of the parts, whether or not counterbal-

anced, makes necessary the use of considerable force at all times. The force required is increased by many conditions met with in actual operation, such as the condition known as "steam in the cylinders" when the bar must be brought back against the pressure of the steam, the condition known as "dry valves", conditions affecting the lubricating system such as cold weather or when the engine is "working water", some derangement of the parts or any other imperfection developing in the working of the mechanism. (R. 53, 56.) The force required to reverse, or adjust, the gears also increases with speed and the tractive effort being developed by the locomotives. On an engine in fast motion all the many reciprocating parts of the valve gear move at great speed. (R. 1201, 1379.)

In actual operation the reverse gear must be moved frequently. In switching service it is not uncommon for it to be moved from 30 to 60 times an hour. In road service the movements are less frequent, but on local "runs" the reverse gear is moved many times. Injuries to men in the cab occur for the most part either (1) in the handling of the lever or (2) when the lever is latched and, because of some stress in the many parts of the valve motion communicated through the reach rod, suddenly springs from its notch in the quadrant. Illustrative of the first class of injuries are the ruptures, hernias, torn ligaments and muscles from the resistance of the bar when it develops "hard

handling", as well as bone fractures, dislocations, and other injuries when the bar gets out of control. It will be realized that, in the handling of a locomotive, the engineer must, when necessary, exert his utmost muscular effort whatever may be the consequences to himself. Concerning the second class of injuries, the suddeness with which the bar often springs from its notch in the quadrant and the violence with which it threshes back and forth are plainly shown; and injury to the men in the cab and the seriousness of its nature depends on whether they happen to be caught by the bar at such times, and, if caught, in what manner. The clearance between the bar and other parts of the cab is limited. (R. 55.) As said by the Commission (R. 56):

> Frequent reference is made in the record to the extent to which the injuries attributable to the hand reverse lever could be avoided if the engineer would be more careful as to where he places his arms and legs while operating a locomotive equipped with hand reverse gear. However, in actual operation and with the varied and frequent movements which the engineer is required to make in order to perform his duties properly, he can not constantly keep clear of the reverse gear in the cab. In theory this might be possible, but in actual practice it can not reasonably be expected. The engineer or other person operating the locomotive is as a matter of actual fact constantly

> subjected to whatever hazard exists in operating the hand reverse gear, and under many circumstances he has no way of effectively guarding against injury.

On locomotives equipped with hand-operated gear there is direct connection between the hand lever and the valve gear. In contrast, on locomotives equipped with power-operated gear, the compresssed air not only supplies the power to move the valve gear and overcome the frequently violent resistance, but also serves as a cushion against which the above-described shocks from the valve-gear mechanism expend themselves, either wholly or for the most part.

As said in the Commission's report (R. 52):

> When locomotives are equipped with hand reverse gear any derangement of the valve motion is communicated to the reverse lever in the cab through lifting shaft and reach rod. But when a power reverse gear is used the reach rod terminates at the power reverse gear, and the only connection to the cab is the rod connecting the reverse gear operating lever with the valve located at the reverse gear which admits air to the reverse gear cylinder.

Furthermore, because of the force necessary to operate the lever the engineer must at such times bring his head in from the window and his attention is thus distracted from the tracks in the path of the engine's movement. (R. 58, 242, 255.) In recognition of the force that must be exerted, the carriers have supplied foot braces on most engines.

And there is much testimony showing that the engineer often has to brace his foot against the boiler head and often call the fireman and even others to his assistance. (R. 260, 255.)

The evidence of accidents submitted to the Commission consisted (1) of the testimony of witnesses who were injured or who were on or around the locomotives when accidents occurred, which testimony was supplemented in some instances by reports of inspectors made under the Boiler Inspection Act, and (2) of exhibits taken from accident reports (Form T) filed by the carriers with the Commission's Bureau of Statistics reporting accidents to men operating the locomotives under the Bureau's classification "Reverse gear, operating" (R. 1420; 1108). The carrier's Exhibit 53 (R. 1499) was a summarization of such accidents for the five years from 1925 to 1929 and showed a decreasing number, but not segregated as between "power reverse" and "hand reverse." The total number of injuries shown was 1,116 for the 5-year period. Complainants' Exhibit 13 (R. 1420–1486) consisted of copies of such accident reports under the same classification for the years 1929 and 1930. It showed 232 such injuries for the 2-year period and, taken together with Exhibit 49 (R. 1429) which segregated the same between "power reverse" and "hand reverse", shows that 216 thereof occurred on locomotives equipped with "hand reverse" and 16 on locomotives equipped with "power reverse." During

the latter period about the same number of engines in service were equipped with the respective kinds of reverse gear. The Commission, referring to the latter exhibits, said that the showing there made was illustrative of the proportion of such casualties occurring on locomotives equipped with hand reverse gear and power reverse gear. (R. 54.)

Through the testimony of engineers, firemen and others who had been injured when operating with hand reverse gear, the complainants supplemented these reports by showing in detail the circumstances attendant upon such accidents, including the reasons why, in performing their duties, they were necessarily subjected to the hazards of injuries from extreme bodily strain when "hard-handling" or "thrashing" of the bar developed and to the hazards of injuries from being caught by the bar at such times, both when handling it and when it suddenly jumped from its notch in the quadrant.

Through the testimony of witnesses relating to the period covered by their said reports to the Commission and to considerably earlier periods, the carriers showed accidents, including certain fatalities, occurring on or around or in the path of locomotives equipped with power reverse gear. The Commission's report discusses at some length the nature of such accidents. As illustrative thereof, when engines are around the terminals and roundhouses and the air compressors not in operation,

there is absence of, or lowered, air pressure in the power gear cylinders. In such condition the valves which admit steam to one side or other of the pistons in the steam cylinders will not respond to an adjustment of the lever in the cab by a corresponding change in position, and in consequence, if the engine is then "given steam," it may move in an undesired direction and result in injury to employees or property damage. Instances are shown where the roundhouse "hostler" or the engineer neglected, before opening the throttle, to make certain of his air pressure, or that the reverse gear was responding to his movement of the lever in the cab and accidents resulted therefrom. These accidents, it is plain, were of a kind avoidable by reasonable care (R. 641, 643, 1228). And, moreover, such movements of locomotives in an undesired direction are not confined to those equipped with "power reverse." (R. 1361, 1449.)

Instances were also shown where, because of breakage of air pipes or failure of compressors, power gears have been rendered inoperative. This is of no significance in the operation of trains, for the air brakes on the entire train so function as to be automatically applied when "air is lost." In rare instances and only when locomotives are running "light" (i. e., without cars) it may be desirable, when air is thus lost, to attempt to reverse the gear in an effort to stop the locomotive. For this

purpose,[5] and as an auxiliary source of power in such emergency, steam connections into the air power cylinders are provided on many locomotives. Instances of accidents pointed to by the carriers on engines having steam connections into the air power cylinders show either that this auxiliary was not maintained in workable condition or that its operating valves were not placed in a convenient location for prompt use by the engineer. (R. 816, 817, 1089, 1538, 1104, 1319, 1320.) The Commission's order requires, as aforesaid, that air-operated power reverse gear shall have suitable steam connection with the operating valves conveniently located in the cab and so arranged and maintained that in case of air failure steam may be quickly used to operate the reverse gear.

Other instances urged by the carriers as showing that power reverse gear was less safe than the hand lever type were of injuries caused by the starting up of the air compressors, or by the lever being put in reverse, when engineer, fireman or mechanics were oiling around the parts or were making adjustments of the parts. These instances will be discussed in detail later, but in passing, it may be said that such accidents to men when working in and

[5] It is apparent that, if the engine has gained much headway, an attempt to stop it by use of the reverse gear would be more likely to succeed with steam power than manual power, and there would be much less hazard to the engineer in making the attempt with the auxiliary power than with the hand lever.

around the parts of a locomotive are of a class avoidable by adequate signalling or other measures ensuring that the men are clear thereof before such parts are put in motion;[6] and that that is the only way they are avoidable, whether such parts of the locomotive are put in motion by air compressor, power or manual reverse, or steam throttle.

Meeting complainant's assertion that the cost of installing power reverse gear (about $400) would be offset by increased efficiency, the carriers contended that on the contrary power reverse gear was less efficient because of the fault termed "creeping", which made it difficult to use steam in the most economical manner and resulted in unnecessary fuel consumption. (R. 58.) Some of the witnesses testified to this but others had encountered no difficulty from "creeping", or considered that it resolved itself largely into a question of proper maintenance. At page 360 of its report (R. 59) the Commission said:

> Aside from the evidence of record we cannot believe that the carriers would contemplate the continued use of over 29,000 steam locomotives with power reverse gear, and contemplate the application of power reverse gear on new locomotives, if those in charge of the construction and operation of locomotives actually and sincerely believed

[6] Railroad officials stated that, with changes in inadequate operating rules, such accidents can be prevented, and are not to be expected. (R. 1111, 1112, 1201.)

> that power reverse gear is less safe or less efficient than hand-operated reverse gear.[7] Witnesses for the carriers, who were asked the question, were firm in their opinion that we should not require power reverse gear to be removed from present locomotives and hand-operated gears used in lieu thereof.

The position of the carriers was that the installation of power reverse gear had not been with the thought of promoting safety but was "due to the increasing size of locomotives and because the limited clearance between the boiler and the side of the cab renders it impracticable to apply hand reverse gear." (R. 56.) Doubtless the installation of "power reverse" was not for the specific purpose of promoting safety, but as to its being *less* safe than "hand gear" by reason of the features emphasized by the carriers, its wide adoption[8] by the carriers,

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[7] Engineer Hurd, employed by the Erie Railroad, testified (R. 275): "I have had experience with manual lever, manual screw and precision power reverse. Our engines are now about half of them equipped with the precision gear, and as fast as they go into the shop they come out equipped with them." See also testimony of Engineer Flood of the New York Central. (R. 295.)

[8] The record shows, on the one hand, that locomotives weighing on drivers as much as from 200,000 to 250,000 pounds include a substantial proportion equipped with hand reverse gear and that, on the other hand, locomotives weighing on drivers below 150,000 pounds and down to 100,000 pounds include a substantial proportion equipped with power reverse gear (Ex. 10, sheet 4, Vol. of Special Exhibits); that railroad officials testified that power reverse gear now in use should be retained and they intended and desired to equip all new locomotives with power reverse. (R. 1005–07, 1186, 1258, 1285.)

their own program of equipping new locomotives and about 1500 more existing locomotives with "power reverse" were matters which could hardly be ignored.

The financial condition of the carriers was urged as a reason why they should not be required to make the expenditure (approximately $400 per engine) necessary to install power reverse gear. As above shown, the Commission's order affects locomotives above specified weights only. The record shows (Ex. 58, R. 1501) that approximately 13,000 are below said weights, leaving about 18,600 above said limits; of which number many are now out of service "awaiting disposition and will never again be used" and many in service "will be dismantled before they are given class 3, or heavier, repairs." (R. 59.) Referring to the effect of the order in light of the carriers' financial condition, the Commission said (R. 59):

> As a practical matter we are, in the main, looking to the future in the consideration of this case. The rule established herein with respect to locomotives now owned by the carriers is that those having more than a specified weight on driving wheels be equipped with power reverse gear when they are shopped for class 3, or heavier, repairs. Our last annual report shows that there were at that time 9,840 locomotives stored in serviceable condition and 6,442 others out of service undergoing or awaiting repairs. A large percentage of these locomotives is equipped with hand reverse gear. What-

> ever expense results from these applications will be distributed among a large number of carriers and spread over a period of approximately four years. A large number of the locomotives equipped with hand reverse gear are now set aside awaiting disposition and will never again be used. Many of the locomotives in service with hand reverse gear will be dismantled before they are again given class 3, or heavier, repairs. * * *.
>
> * * * Nor are we unmindful of the financial condition of the carriers, which was strongly urged as a reason for denial of the relief here sought. But we can not believe the present financial condition will be permanent and we are convinced that action should now be initiated to afford relief in the future from the conditions complained of.

In explaining the reason for the order's application only to the heavier type of locomotives, the Commission said:

> To draw a line of demarcation which will provide the degree of safety contemplated by the law and yet not cause unnecessary expense on the part of the carriers is not easy. While the accident records do not in all cases show the size of the locomotives on which accidents have occurred, they do indicate that the greater number occurred on the heavier types. This results from the difference in size and weight of parts which must be controlled and operated by the reverse gear, and from differences in speed and cab clearances

> and in other conditions encountered in the actual operation of locomotives. We can not disregard the fact that thousands of the smaller types of locomotives are now in storage and will in all probability never again be used.

Following issuance of the order by Division 6 of the Commission, the carriers filed petitions (R. 196, 204) for rehearing and reconsideration by the entire Commission. On April 3, 1933, the Commission denied the petitions.

## PROCEEDINGS IN THE LOWER COURT

The petition to enjoin and set aside the Commission's order was filed May 31, 1933, by appellee carriers. (R. 1.) The United States was named defendant and the Commission and the complainants in the Commission proceeding intervened in defense of the order. (R. 64, 69.) Answers were filed by the United States, by intervener Commission and by said other intervening defendants. (R. 62, 64, 69.) Following oral argument, June 19, 1933, and filing of briefs, the case was submitted to the Court upon the pleadings, the report and order of the Commission, and a certified copy of the testimony and exhibits introduced before the Commission. (R. 231.)

November 24, 1933, the Court rendered its opinion, sustaining the Commission's power to enter the order, but holding the order to be invalid on the ground that the Commission had arbitrarily disre-

garded, and failed to give proper consideration and weight, to evidence before it. (R. 207.) January 30, 1934, the Court filed its findings of fact and conclusions of law. (R. 218.) February 5, 1934, the Court entered its decree setting aside the order and perpetually enjoining its enforcements. (R. 224.)

## SPECIFICATION OF ERRORS

The following errors of the District Court are herein specified (R. 226):

1. In holding and determining that the function and power of the Interstate Commerce Commission in a proceeding such as here involved were the same as or comparable to that of a jury in a case at law.

2. In holding and determining that the said Commission failed to give proper weight to the evidence before it, or any part thereof or to the substance thereof, and in holding and determining that the Commission ignored competent evidence and disregarded any established standard respecting the weight of the evidence.

3. In holding and determining that there was uncontradicted evidence in the record before the Commission which the Commission ignored or used in violation of its true import.

4. In holding and determining that the Commission did not fairly consider all of the pertinent and substantial facts presented to it.

5. In holding and determining that the weight of the evidence did not justify the order of the Commission.

6. In undertaking to make and in entering upon a determination upon conflicting evidence of the fact questions presented in the case before the Commission, and thus exceeding its proper authority and function and assuming those of the Commission.

7. In reviewing the determination of the said Commission on the facts, and in substituting its judgment for that of the Commission in respect of a matter, the determination of which is vested in the Commission.

8. In holding and determining that the Commission's action was arbitrary and in disregard of its duty.

9. In entering a decree setting aside the order of the Commission and restraining its enforcement.

10. In not entering a decree dismissing the petition.

Appellees' contentions in the lower court that the Commission was without statutory authority to make the order will doubtless be renewed in this Court and, to the end of orderly presentation in the one brief, it will be shown here both that the Commission's order was within its statutory authority and that it was fully supported by the evidence.

## SUMMARY OF ARGUMENT

1. A power reverse gear is an "appurtenance" within the scope of the Boiler Inspection Act's purpose to require carriers to equip their locomotives with safe and suitable appurtenances. Reversing gear is one of the appliances necessary in the operation and control of the locomotive and as such has to be in the cab and frequently handled. Power reverse gear is shown practically to eliminate the repeated accidents caused directly by hand reverse gear to engineers and firemen, and also to relieve them mentally and physically from the constant hazard of such injuries and fatigue of operating the hand lever, thereby promoting their ability to perform their duties and the safety of all concerned. *Napier* v. *Atlantic Coast Line R. R.*, 272 U. S. 605, 611; *Baltimore & Ohio R. R.* v. *Groeger*, 266 U. S. 521; *Baltimore & Ohio R. R.* v. *Int. Com. Com.*, 221 U. S. 612; *Johnson* v. *Sou. Pac. Co.*, 196 U. S. 1.

2. The Commission's authority, under the Boiler Inspection Act, to establish rules and regulations governing the fitness of locomotives for service, including the specifying of equipment to be used, is plain on the face of the Act and confirmed by decisions of this and other Courts. It may modify or amend its first set of rules and regulations by prescribing different ones, and may do so in proceedings instituted upon application of railroad employees or others for whose benefit the Act was

enacted. *Napier Case, supra.* Its initiative in respect of rules and regulations under said Act was not, as contended by appellees, exhausted by its establishment of the first code of rules. Its power includes the prescribing of changes in its rules and regulations and not alone such changes as may be requested by the carriers, but such also as may be found necessary to promote the safety of employees and travellers in proceedings instituted on initiative other than the carriers upon whom the requirements are made.

3. In order to support the requirement of the order for installation of power reverse gear on existing locomotives in service above specified weights when shopped for Class 3, or heavier, repairs, or in any event prior to 1937, there was no need for a finding that "hand reverse" locomotives below said weights were unsafe or for a finding that operation of "hand reverse" locomotives was unsafe at the immediate moment of the entry of the order and requiring immediate discontinuance of the use of all such locomotives. The Commission stated the facts on which it drew the "line of demarcation" at the specified weights; in the making of rules and regulations under the Boiler Inspection Act there is latitude for rational differentiation. *Napier Case, supra,* 613. Compare *Assigned Car Cases,* 274 U. S. 564, 583. Concerning operations at the moment of entry of a Commission order amending its rules, it would be a rigid construction

of the Commission's rule-making duties to assume that it must, upon adopting a general rule governing the fitness of locomotives for service, require immediate suspension of the use of locomotives until compliance therewith could be made. The delegation to the Commission of power to prescribe rules and regulations carries with it a discretion, safeguarding against rigidity in exercise of the power that would be inimical to the interests of all concerned.

4. The lower court, in setting aside the Commission's order, on the factual situation disclosed in this case, clearly set its judgment against that of the Commission on conflicting facts, employed its own reasoning and substituted its opinion for that of the regulatory body. Where the action of a regulatory tribunal is set aside as arbitrary and unlawful on grounds of lack of substantial supporting evidence, failure or refusal to consider substantial and uncontradicted evidence, or action contrary to the indisputable character of the evidence, such grounds must appear in fact and substance; for otherwise the doctrine, of fundamental importance to all regulatory and administrative law, that a court should not weigh the evidence or substitute its judgment necessarily altogether loses substance. There was neither refusal nor failure by the Commission to consider the carriers' evidence, nor were its conclusions and action without support of substantial evidence or contrary to its indisputable

character. The lower court, in holding that the Commission, in reaching its determination that power reverse gear was safer than hand reverse gear, had used a quantitative instead of a qualitative standard, giving the same consideration to a slight or temporary injury as to a serious or permanent one, misconceived the import of the showing that engineers and firemen, when operating locomotives with hand reverse gear were subjected to numerous direct injuries and the hazard of such injuries, against which, in view of their many duties, under many circumstances they have no practical means of safeguarding themselves, whereas when operating with power reverse gear, they are to all intents and purposes freed from such direct injuries and the hazard thereof. The nature of the injuries occurring when operating with the "hand bar" run from broken bones, some of the multiple type, ruptures and other abdominal injuries, torn ligaments and wrenched or sprained backs or muscles, down to bruised bones or bodies, the latter however often a kind of bruise or contusion causing many days' disability. The thing to be emphasized is that reversing gear is one of the appliances necessary to operation of the engine and a showing of such numerous direct injuries and the hazard thereof from the handling of the "hand reverse" or from its mere presence in the cab, does not have to be accompanied by a showing that it frequently kills or permanently disables in order

to bring conviction that "power reverse", shown practically to eliminate such direct injuries and the hazard of such injuries to engineers and firemen, operating train and locomotive, is promotive of safety in its most substantial sense. The fact that the Commission laid stress on the numerous injuries to "cab stationed employees" does not mean that it refused to consider the carriers' evidence of injuries of another sort in which "power reverse" was in one way or another involved, particularly since its report fully considers and discusses such evidence. Such distinction as the Commission made between the direct injuries from the hand lever to the men operating the locomotive and injuries to the same men or other men when otherwise engaged, in which "power reverse" was involved, obviously was not a distinction based simply upon a difference in employees as persons.

The fact that the Commission made the observation that aside from the record it could not believe the carriers would contemplate the continued use of over 29,000 "power reverse" locomotives and plan to install "power reverse" on new locomotives if those in charge of the construction and operation of locomotives actually and sincerely believed that "power reverse" was less safe or less efficient than "hand reverse", does not convict it, as held by the lower court, of a clear disregard of undisputed testimony or of the use of such testimony in violation of its true import. The Commission referred

(R. 56) to the carriers' position that the installation of "power reverse" had not been with the thought of promoting safety but "was due to the increasing size of locomotives and because the limited clearance between the boiler and the side of the cab renders it impracticable to apply hand reverse gear." Doubtless the installation of power reverse gear was not for the specific purpose of promoting safety but, as to its being *less* safe by reason of the features emphasized by the carriers, just how the Commission could close its eyes to its wide adoption by the carriers and their own program of installing it on new locomotives, is not clear. The lower court itself, after, it is true, making many contrary findings, makes the finding (R. 222) that "In several respects power reverse gears do not make for safety as much as does the hand reverse gear, although the locomotive equipped with either type of gear properly installed and maintained is in proper condition and safe to operate without unnecessary peril to life and limb." This conclusion of the Court is not relied upon to show that the court's *judgment* was in accord with that of the Commission but it would seem to dispute that there was any slightest element of arbitrariness in the Commission's conclusion that the carriers' evidence failed to establish that "power reverse" was unsafe. The difference between the Court's judgment and that of the Commission was that the Commission considered that "power re-

verse" was safer than "hand reverse"; that reversing gear being one of the appliances necessary to operate the locomotive and "power reverse" being shown to practically eliminate the injuries and hazards to which the men, operating locomotive and train, are directly subjected by "hand reverse" was promotive of safety in its most substantial sense.

Contrary to the lower court's views, there was a large amount of evidence supporting the Commission's order in respect of "hand reverse" of the screw type. Since it is not a lever, it does not jump from a quadrant, but in other respects it subjects the engineer to injuries and all (and perhaps more) of the overstrain, and fatigue shown from operating with the hand lever and diverting him from his duties. Similarly as the hand reverse, it is an appliance essential to operation of the locomotive, and the Commission's rejection of it as an "improved device increasing safety" in any way comparable with "power reverse" was entirely sound as shown by a large body of testimony.

5. The Commission gave full and careful consideration to the carriers' financial condition. That is shown, not alone by the paragraph quoted in the Court's opinion but by other discussion and findings.

## ARGUMENT

### 1. A power reverse gear is an appurtenance of a locomotive within the remedial scope of the Boiler Inspection Act

Appellees contended before the Commission and the lower court that a power reverse gear was not a safety appliance within the scope of section 2 of the Boiler Inspection Act. Said section 2 provides:

> That it shall be unlawful for any carrier to use or permit to be used on its line any locomotive unless said locomotive, its boiler, tender, and all parts and appurtenances thereof are in proper condition and safe to operate in the service to which the same are put, that the same may be employed in the active service of such carrier without unnecessary peril to life or limb, and unless said locomotive, its boiler, tender, and all parts and appurtenances thereof have been inspected from time to time in accordance with the provisions of this Act and are able to withstand such test or tests as may be prescribed in the rules and regulations hereinafter provided for.

Concerning the question as to what appliances constitute "parts" or appurtenances of a locomotive within the remedial purpose of the Boiler Inspection Act, the decisions of this Court make clear that an appliance prescribed, as here, to put an end to repeated injuries and the continuing hazard thereof to men operating the locomotives is fully

covered. In *Napier* v. *Atlantic Coast Line Railroad,* 272 U. S. 605, the issue was involved as to whether the Boiler Inspection Act had occupied the field of steam locomotives, their parts and appurtenances, thereby rendering invalid statutes of the States of Georgia and Wisconsin, the one requiring installation of automatic fire box doors, and the other requiring installation of cab curtains. In respect of these devices the Court said, among other things (p. 610), that "Each device was prescribed by the State primarily to promote the health and comfort of engineers and firemen." And later, in holding that said devices were covered by the Boiler Inspection Act, thus excluding the States from the field, the Court said, p. 611:

> The requirements here in question are, in their nature, within the scope of the authority delegated to the Commission. An automatic firedoor and an effective cab curtain may promote safety. Keeping firemen and engineers in good health, like preventing excessive fatigue through limiting the hours of service, clearly does so, although indirectly; and it may be found that to promote their comfort would likewise promote safety. * * *

In the instant case the purpose of prescribing power reverse gear was to prevent the repeated injuries shown to be directly caused by hand reverse gear to the men operating the locomotives and against which they have no effective means of safe-

guarding themselves. It was also for the purpose of removing the constant hazard of such injuries, thereby certainly promoting the comfort of the men operating the locomotives and likewise, it would seem, the safety of all concerned.

The *Napier Case* announces no new principle. The Courts have repeatedly held that the Act was enacted for the safety of employees (*Baltimore & Ohio Railroad* v. *Groeger,* 266 U. S. 521; *Great Northern Ry.* v. *Donaldson,* 246 U. S. 121) and that it should be liberally construed and its obvious purpose effectuated. *Hines* v. *Smith,* 275 Fed. 766; *United States* v. *Southern Ry.,* 1 F. (2d) 487; *United States* v. *K. C. So. Ry.,* 202 Fed. 828. The same rule of giving full effect to a remedial Act was followed in construing the Hours of Service Act (*Baltimore & Ohio Railroad* v. *Int. Com. Comm.,* 221 U. S. 619) and in construing the Automatic Coupler Act. *Johnson* v. *So. Pac. Co.,* 196 U. S. 1.

**2. The Commission's power in respect of rules governing the fitness of locomotives for service is not exhausted by its establishment of the first set of rules, but extends to the making of changes; and not alone such changes as may be suggested by the carriers, but also such as may be found necessary in proceedings instituted upon applications of persons for whose benefit the statute was enacted**

The carriers also contended that the Commission was without authority to proceed, as it did, in a proceeding instituted upon complaint of the carriers' employees, and therein prescribe changes in "the

existing code of rules under the Boiler Inspection Act." This contention seems, firstly, to raise the purely procedural question as to the propriety under the Boiler Inspection Act of a proceeding upon complaint and answers, followed by hearings held to the end of developing facts upon the issues joined in the pleadings (R. 10) and secondly, to raise the question as to whether there was any power in the Commission to change its rules (once same had been established) by any procedure other than that, upon request of the carriers for a change, it might approve or disapprove such change. (R. 41.)

The full text of the Boiler Inspection Act is set forth in the appendix. The following brief résumé thereof is given as a background for discussion: Section 1 defines the terms "carrier", "railroad" and "employees" as used in the Act. Section 2 has just above been set forth. In substance it prohibits the use by any carrier of any locomotive unless said locomotive and all its parts and appurtenances are in proper condition and safe to operate in the service to which the same is put, and may be used in active service without unnecessary peril to life or limb, and unless the same has been inspected from time to time and meets such tests as may be prescribed in the rules and regulations hereinafter provided for. Sections 3 and 4 provide for the appointment by the President of a chief inspector and two assistants, who are to di-

vide the country into 50 districts, and the Interstate Commerce Commission is to appoint district inspectors for said districts. Section 5 provides for the making of rules and instructions for the inspection of locomotives, and its provisions will be given in detail presently. Section 6 prescribes in a general way the duties of the district inspectors. Noteworthy here is the provision that a district inspector's

> first duty shall be to see that the carriers make inspections in accordance with the rules and regulations established or approved by the Interstate Commerce Commission, and that carriers repair the defects which such inspections disclose before the boiler or boilers or appurtenances pertaining thereto are again put in service.

Section 6 also provides that a district inspector may order a locomotive which he finds does not conform to law or to the rules and regulations, out of commission, subject to the carrier's right of appeal to the chief inspector and from the chief inspector to the Interstate Commerce Commission. Section 7 provides for annual reports by the chief inspector to the Commission of the work done and including such recommendations for the betterment of the service as he may desire. Section 8 provides for statements by the carriers to the chief inspector of accidents resulting in serious injury or death, and investigations of said accidents by the chief in-

spector or such district inspector as he may designate, and provides that the Commission may call for a report of any accident and publish its report thereof if it deems proper. Section 9 subjects any carrier violating the Act or any rule or regulation thereunder or any lawful order of any inspector to a penalty of $100 for each violation. The remaining sections of the Boiler Act (set forth in the appendix) consist of the 1915 amendments which extended the provisions of the Boiler Inspection Act to include the entire locomotive and tender and all parts and appurtenances thereof.

**(a) In performing its duty to prescribe rules and regulations, the Commission could entertain, and act upon, application by the carriers' employees and otherwise carry out its duties by the procedure here followed**

Concerning the carriers' objections to the procedure followed by the Commission in making the order amending its rules: In the *Napier Case, supra,* (which will be more fully developed presently) this Court held that the Commission was empowered and that it was its duty to prescribe the rules by which fitness for service of locomotives shall be determined, including rules specifying particular equipment; and the concluding paragraph of said decision read:

> If the protection now afforded by the Commission's rules is deemed inadequate, application should be made to it. The Commission's power is ample. * * *

Accordingly, upon the filing of the application, or complaint, in the instant case, it became the duty of the Commission to hear and determine the questions raised. That duty was imposed by the Boiler Inspection Act, but upon the Commission as a body created by the Interstate Commerce Act. Section 17 of the latter Act (text in Appendix) authorizes the Commission to divide itself into, and function by, Divisions, in respect of any of its work under the Interstate Commerce Act "or any other Act," subject to right to apply for rehearing "as provided by section 16a." (Text in Appendix.) The case was heard and determined by a Division of the Commission as is expressly authorized by paragraph 3 of said section 17 in respect of work of the Commission under "any other Act" as well as under the Interstate Commerce Act. The carriers applied for rehearing as provided by section 17 and 16a, above mentioned, and their application was denied by the entire Commission.

Said section 17 (in paragraph (1) thereof) also authorizes the Commission "to conduct its proceedings in such manner as will best conduce to the proper dispatch of business and to the ends of justice." There seems to be no reason why this latter should not apply to the performance of duties under Acts other than the Interstate Commerce Act; but whether it does or does not, it is a familiar principle that where a duty is imposed upon an administrative body, it has implied authority to carry

out that duty (Lewis' Sutherland Statutory Construction, Vol. II, Sec. 511.) The carriers do not (and did not at the hearings) suggest any other more practicable or fairer procedure than that that was followed.

**(b) The Commission's power to prescribe changes in its existing rules and regulations is not restricted to such changes as may be submitted by the carriers**

Appellees' main contention appears to be that the Commission, following its establishment of its first code of rules and regulations, was without power to make changes, either, as here, on application of the carriers' employees or any other initiative except that, upon filing with it of suggested changes by the carriers, it may approve such changes. (R. 10.)[9] This contention of appellees rests on section 5 of the Boiler Act (full text in Appendix) which reads in part:

> That each carrier subject to this act shall file its rules and instructions for the inspection of locomotive boilers with the chief inspector within three months after the approval of this Act, and after hearing and approval by the Interstate Commerce Com-

[9] It is assumed that appellees do not contend that the rules could not be changed to cover the parts and appurtenances of the locomotive following the 1915 amendment which extended the Boiler Act to cover all parts and appurtenances of the locomotive; as we understand their contention, however, it is that after the Commission had once established rules taking cognizance of the 1915 amendment, such rules become fixed except for changes submitted by the carriers.

> mission, such rules and instructions, with such modifications as the Commission requires, shall become obligatory upon such carrier: *Provided, however,* That if any carrier * * * shall fail to file its rules and instructions the chief inspector shall prepare rules and instructions * * * which * * *, being approved by the * * * Commission, * * * shall be obligatory, * * *: *Provided, also,* That such common carrier may from time to time change the rules and regulations herein provided for, but such change shall not take effect * * * until the same shall have been filed with and approved by the * * * Commission.

Apparently appellees rely upon the last proviso for their position that, once having approved or established the rules, the Commission's power of modification was exhausted; that is, that the rules thereafter could be changed only at the carriers' request, the Commission's authority being limited to approval or disapproval of such changes. It is readily understandable why Congress should give the carriers opportunity to benefit by experience under the rules and new inventions, but in order to reach that understanding it is not necessary to import an intention to deny like opportunity to the carriers' employees or the public for whose benefit the Act was passed.

The petition herein states (R. 10) that the reasons for appellees' contention that the Commission was without power in the premises were urged

upon and fully explained to the Commission. In its report the Commission said of the carriers' contention here under consideration (R. 53):

> The carriers contend that our rules, approved and established under this act, can be changed only upon their application, and that the public, the employees, and the commission itself are powerless otherwise. They urge that the only instance in which we have authority to require the installation of additional equipment is when upon appeal from the decision and notice of an inspector, as provided in section 6 of the boiler inspection act, that a particular locomotive does not conform to the requirements of the law and shall not thereafter be used because of the absence of the additional equipment we sustain such decision.

In short, the carriers' construction of the Act is that, following the promulgation of rules thereunder the situation became "frozen" insofar as the Commission's initiative is concerned or that of the employees or public for whose benefit the Act was passed. They suggest only one procedure (except where they request the change) whereby a change of the rules could be effected. As above said, section 6 of the Act authorizes a district inspector to order a locomotive out of commission whenever he finds that the same does not conform "to the requirements of the law or the rules and regulations established and approved as hereinbefore stated." The carriers' suggestion is that, if a district in-

spector finds a *particular* engine does not conform to law, and orders it out of commission, then upon appeal by the carriers from such order the Commission has authority to sustain the district inspector's decision. Thus, in line with this view of the Act, only if, and after, all locomotives to be covered by a change in the rules are ordered out of commission, could a modification or amendment of its rules and regulations be prescribed by the Commission.

This must be regarded as a labored construction and it is in square conflict with this Court's decision in *Napier* v. *Atlantic Coast Line,* 272 U. S. 605, which decision, as aforesaid, involved statutes of Georgia and Wisconsin, requiring installation of equipment on locomotives, the one statute prescribing automatic fire-box doors, and the other cab curtains. The suits had been instituted by the appellee carriers on the ground that the Boiler Inspection Act occupied the field of regulating locomotive equipment, precluding State legislation. (607) In upholding this, it was said at pp. 611, 612:

> * * * The intention of Congress to exclude States from exerting their police power must be clearly manifested, *Reid* v. *Colorado,* 187 U. S. 138, 148; *Savage* v. *Jones,* 225 U. S. 501, 533. Does the legislation of Congress manifest the intention to occupy the entire field of regulating locomotive equipment? Obviously it did not do so by the Safety Appliance Act, since its re-

quirements are specific. It did not do so by the original Boiler Inspection Act, since its provisions were limited to the boiler. *Atlantic Coast Line R. R. Co.* v. *Georgia,* 234 U. S. 280. But the power delegated to the Commission by the Boiler Inspection Act as amended is a general one. It extends to the design, the construction and the material of every part of the locomotive and tender of all appurtenances.

* * * It is argued that the authority delegated to the Commission does not extend to ordering the use or installation of equipment of any kind, *Baltimore & Ohio R. R. Co.* v. *Groeger,* 266 U. S. 521; and that Congress has definitely reserved that power to itself; *Interstate Commerce Commission* v. *Cincinnati, New Orleans & Texas Pacific Ry. Co.,* 167 U. S. 479; *Atlantic Coast Line R. R. Co.* v. *Georgia,* 234 U. S. 280; *United States* v. *Pennsylvania R. R. Co.,* 242 U. S. 208. The question whether the Boiler Inspection Act confers upon the Interstate Commerce Commission power to specify the sort of equipment to be used on locomotives was left open in *Vandalia R. R. Co.* v. *Public Service Commission,* 242 U. S. 255. We think that power was conferred. The duty of the Commission is not merely to inspect. It is, also, to prescribe the rules and regulations by which fitness for service shall be determined. Unless these rules and regulations are complied with, the engine is not "in proper condition" for operation. Thus the Commission sets the standard. By setting

> the standard it imposes requirements. The power to require specific devices was exercised before the amendment of 1915, and has been extensively exercised since.

And again at pp. 612, 613, the decision reads:

> The federal and the state statutes are directed to the same subject—the equipment of locomotives. They operate upon the same object. It is suggested that the power delegated to the Commission has been exerted only in respect to minor changes or additions. But this, if true, is not of legal significance. It is also urged that, even if the Commission has power to prescribe an automatic fire-box door and a cab curtain, it has not done so; and that it has made no other requirement inconsistent with the state legislation. This, also, if true, is without legal significance. The fact that the Commission has not seen fit to exercise its authority to the full extent conferred, has no bearing upon the construction of the Act delegating the power. We hold that state legislation is precluded, because the Boiler Inspection Act, as we construe it, was intended to occupy the field. The broad scope of the authority conferred upon the Commission leads to that conclusion. Because the standard set by the Commission must prevail, requirements by the States are precluded, however commendable or however different their purpose. Compare *Louisville & Nashville R. Co.* v. *State,* 16 Ala. App. 199; *Whish* v. *Public Service Commis-*

*sion,* 205 App Div. 756; 240 N. Y. 677; *Staten Island Rapid Transit Co.* v. *Public Service Commission,* 16 Fed. (2d) 313.

If the protection now afforded by the Commission's rules is deemed inadequate, application for relief must be made to it. The Commission's power is ample. Obviously, the rules to be prescribed for this purpose need not be uniform throughout the United States; or at all seasons; or for all classes of service.

This power of the Commission, declared to be ample, obviously was to prescribe changes in its existing rules which, as this Court had observed, did not include the requirements of cab curtains or automatic fire doors; and the invoking of said power by "applications for relief" obviously referred to applications by or on behalf of persons for whose benefit the Act was passed and not to applications by the carriers, upon whom the requirements were to be made.

In two Commission cases following the above decision, namely, the *Cab Curtain Case,* 142 I. C. C. 199, and the *Fire Door Case,* 151 I. C. C. 448, the Commission's jurisdiction was invoked by certain States and carriers' employees, and it prescribed such equipment by amendment to its rules in procedure similar as here.

Appellees, in support of the construction which they give the statute referred before the lower court to the Act's legislative history and pointed

out that the Bill [10] (S. 6702, 61 Cong. 2d Sess.) which after various amendments became the Boiler Inspection Act, originally, among other differences, was worded differently in its provision for the making of rules and regulations; that is, it was worded that the Commission shall have the power to make, amend, alter and enforce all needful rules, etc. It is true that this was not the wording as the Act was passed but, after directing the carriers to file their rules, the Act does provide that, following hearing and approval, such rules and regulations with such modifications as the Commission shall require shall become obligatory on the carriers; and it does not seem possible to construe this power to modify only as applying before the first set of rules were established, with no power to change the rules thereafter, whatever experience might prove to be of benefit to the public. This is made particularly plain when the statute is read as a whole. If changes in the rules could be made only on carrier initiative, the statute would hardly have been entitled "An Act to Promote the Safety of Employees and Travellers by Compelling Common Carriers to Equip their Locomotives with Safe and Suitable Boilers and Appurtenances thereto"; [11] nor would its 6th section have pro-

[10] Said Bill and its substitute bills, and bills proposed in the House of Representatives are set forth in H. R. Report No. 1974 (House Calendar No. 342), 61 Cong. 3d Sess., January 23, 1911.

[11] "The purpose stated in the title of the several Safety Appliance Acts is to be realized in the interpretation of the

vided that an inspector's "first duty shall be to see that the carriers make inspections in accordance with the rules and regulations *established* or approved by the Interstate Commerce Commission * * *."

In the *Napier Case, supra,* this Court found no need for aid of legislative history but, after a comprehensive consideration of the force of the Act and the authority of the Commission thereunder, squarely said that the Commission had power to prescribe the rules and further that, if its rules were deemed inadequate, application should be made to it, for its power was ample. Plainly, as above said, this ample power was to amend and change existing rules, and plainly it could be invoked on applications other than those of the carriers on whom the requirements are imposed.[12]

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language of their bodies." *Atlantic Coast Line R. R.* v. *Napier*, 2 F. (2d) 891, 893; *United States* v. *Southern Ry.*, 1 F. (2d) 487, 488; *Southern Ry.* v. *Crockett*, 234 U. S. 721, 735; *Johnson* v. *Southern Pacific Co.*, 196 U. S. 1, 14.

[12] For their position that they alone can initiate changes in the rules, the carriers rely on *Baltimore & Ohio R. R.* v. *Groeger*, 266 U. S. 521, 531, involving a claim for damage under the Employers' Liability Act on account of death alleged to have been caused by unsafe condition of Boiler in violation of Boiler Inspection Act, wherein it was said with respect to instructions given by the Court to the jury, that it may well be left to the carriers' officers and engineers whether to use fusible plugs or other means to the end that locomotives be kept in safe condition. But the thing emphasized in that case was (p. 530) that it was not for the courts (nor to be left to the *varying* opinions of juries) to lay down rules as to the mechanical means by which locomotives were

Therefore, it cannot be conceded that the statute read as a whole is ambiguous permitting resort to legislative history, even were the matter pointed to of significance. Furthermore the carriers' construction which would leave the Commission and the public with no initiative to change the rules following their first establishment would practically read out of the Act its remedial purpose. Resort to legislative history to this end would be to create ambiguity. In *Wisc. R. R. Com.* v. *Burlington R. R.*, 257 U. S. 563, 589, it was held that resort to legislative history was admissible only to solve doubt and not to create it. There the Court held that the Interstate Commerce Commission's power to raise state rates that unjustly discriminate against interstate commerce extends not only to discrimination against particular interstate shippers but also to unjust discrimination in the sense of a revenue burden upon interstate rates as a whole, that is, a burden which had to be made up by interstate rates in order to secure to the carriers their fair return.

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to be kept in proper condition. The matter of uniform rules and regulations established by an administrative body is something quite different and that fact was recognized by the Court. For the decision did not hold that the Commission could not initiate such rules but, on the contrary, referred to the fact that the Commission's rule there involved "does not purport to require fusible plugs to be used" (pp. 525–526); and later, emphasizing this, the decision reads (p. 529): "There is nothing in the Act *or in any rule, regulation or order* authorized by it, which specifies the use of fusible plugs."

In doing this, the Court gave consideration to the various amendments added to the Interstate Commerce Act by Transportation Act, 1920, and to their remedial purpose, and said that the meaning of the statute when *read as a whole* was plain, and, therefore, resort to aid of legislative history was not permissible.[13]

And so here, appellees' construction of Section 5 of the Boiler Inspection Act that, once the Commission had established its rules and regulations, the situation was "frozen" insofar as the Commission's initiative, or that of the public, is concerned seems to be answered by its mere statement. If, as is contended by appellees, the proviso of section 5 operated as a restriction against any change in the rules as first established except such change as might be suggested by the carriers, then employees and the public could benefit by experience under the rules and by improved and safer devices only insofar as the carriers might impose additional requirements on themselves. This construction given by appellees to said proviso is wholly out of harmony with the Act's announced purpose to compel carriers to equip their locomotives with safe and suitable appurtenances (compare *Spokane & Inland Empire R. R.* v. *United States,* 241 U. S. 344, 350; *Piedmont & Northern R. R.* v. *United States,* 286 U. S. 299, 311); and it squarely conflicts with this Court's holding in the *Napier Case* (p.

[13] See also *U. S.* v. *Shreveport Grain Co.*, 287 U. S. 77, 83.

612) to the effect that, through its power to prescribe rules and regulations, the Commission is authorized to impose requirements specifying equipment to be used on locomotives.

Appellees suggested before the lower court that the opinion in the *Napier Case,* so far as relating to the Commission's jurisdiction to entertain a complaint of employee's organizations seeking amendment of its rules and regulations was obiter. Answering this, the lower court said (R. 209):

> * * * There is color of justification for this claim. But we are not content to so lightly regard its office. The question before the Supreme Court involved a comprehensive consideration of the force of the Boiler Inspection Act, and the authority of the Commission thereunder; so much so that the language of the opinion cannot be regarded by us as merely collateral to the issue there, but rather impellingly applicable as an interpretation of the whole statute as operatable legislation.

As above said, the question before this Court in the *Napier Case* was whether the Boiler Inspection Act had so occupied the field of locomotive equipment that state legislation prescribing cab curtains and automatic fire doors was precluded; and, as introductory to consideration of the scope of the powers delegated to the Commission by the Boiler Inspection Act, it was there said (p. 611) that "The intention of Congress to exclude States from exer-

cising their police powers must be clearly manifested, *Reid* v. *Colorado,* 187 U. S. 137, 148; *Savage* v. *Jones,* 225 U. S. 501, 533." So that it is obvious that the question before the Court involved a comprehensive consideration of the force of the Act and of the Commission's jurisdiction thereunder, and required an opinion covering those matters. That opinion as to the Commission's jurisdiction seems to be the same as generally found in the Act by the courts (*Whish* v. *P. S. Comm.,* 200 N. Y. Supp. 282, 284; *L. & N. R. R.* v. *Alabama,* 76 Sou. 505; *Fort Worth & D. C. Ry.* v. *Jones,* 294 Fed. 858; *Atl. Coast Line R. R.* v. *Napier,* 2 F. (2d) 891; 892; *Staten Is. Rapid Transit Co.* v. *P. S. Comm.,* 16 F. (2d) 313), and to have been led up to by earlier decisions of this Court, keeping pace with the changes in the Act.

In *Atlantic Coast Line R. R.* v. *Georgia,* 234 U. S. 280, 293, the Boiler Inspection Act as originally enacted (36 Stat. 913) was, among other Acts, considered by this Court, and held not to oust the authority of the State with respect to locomotive headlights because it did not appear that Congress had acted, or that the Commission, under the authority of Congress, had established any regulations concerning headlights. In *Vandalia R. R.* v. *Pub. Serv. Comm.,* 242 U. S. 255, which was decided after the 1915 amendment to the Boiler Inspection Act (38 Stat. 1192) had extended its provisions to the entire locomotive and tender and all parts and

appurtenances thereof, it was said (p. 259), that the question whether those provisions authorized the Commission to prescribe any particular type of headlight, or other appliances, was one upon which it was not then necessary to pass because the decision of the Indiana Court there involved, sustaining the State Commission's order prescribing electric headlights, had been rendered before the passage by Congress of said amendment. But in the *Napier Case,* as aforesaid, the question of Commission jurisdiction to prescribe regulations specifying particular equipment was squarely raised by the State legislation requiring the installation of automatic fire doors and cab curtains, enacted after the amendment to the Boiler Inspection Act; and there, referring to the *Vandalia Case,* just mentioned, it was said (p. 612): "The question whether the Boiler Inspection Act confers upon the Interstate Commerce Commission power to specify the sort of equipment to be used on locomotives was left open in *Vandalia R. R. Co.* v. *Public Service Commission,* 242 U. S. 255. We think that power was conferred."

Further as to the Commission's power to make changes, once the first code of rules had been established: In the *Napier Case* it was urged that the fact that the Commission's then rules did not prescribe automatic fire doors and cab curtains, was reason why the State legislation requiring such equipment was not precluded. In answer, this

Court said (p. 613), in substance, that the fact that the Commission had not exercised its full power had no bearings; that State legislation was precluded because the Act was intended to occupy the field; and that "the broad scope of the authority conferred upon the Commission leads to that conclusion." But, in line with the carriers' contentions here, the Commission was powerless, either on its own initiative or at the instance of employees or the public, to modify its rules so as to prescribe automatic fire doors and cab curtains. So that, while State legislation requiring such equipment was precluded by the scope of the authority conferred upon the Commission by the Boiler Inspection Act, at the same time, according to the carrier's construction, the Commission could not, under authority of said Act, initiate a change in its rules so as to prescribe such equipment, because, as is the substance of their contention, once the first set of rules had been established, the matter of changes was left by the Act to their sole initiative.

However, that was not the holding in the *Napier Case;* it was instead (p. 613) that the Commission had ample power in the premises and that if its rules were deemed inadequate, application for relief must be made to it.

**3. In order to support its order for installation of power reverse gear on new locomotives, and on existing locomotives used in service above specified weights when shopped for class 3, or heavier, repairs or in any event prior to 1937, it was not necessary that the Commission make a finding that all "hand reverse" locomotives, including those below said weights, were unsafe, or that it make a finding that past operation of "hand reverse" locomotives had been unsafe in violation of the Act**

The carriers pointed out before the lower court that the complaint before the Commission alleged that all locomotives equipped with hand-operated reverse gears are unsuitable and unsafe, and urged that, in order to support an order made upon such a complaint, it was essential to find that all locomotives so equipped were, because of that fact, unsuitable and unsafe. The Commission's order affects only locomotives above certain specified weights and for those not affected there was no need of supporting finding. Appellees were, in this particular, complaining not of what the findings and order required but of what they did not require. And, as for the reasons why appellees were not required to equip all cars with hand reverse gear, the Commission stated the facts on which it drew "the line of demarcation" at the specified weights, among other things, saying (R. 60):

> To draw a line of demarcation which will provide the degree of safety contemplated by the law and yet not cause unnecessary expense on the part of the carrers is not easy.

> While the accident records do not in all cases show the size of the locomotives on which accidents have occurred, they do indicate that the greater number occurred on the heavier types. This results from the difference in size and weight of parts which must be controlled and operated by the reverse gear, and from differences in speed and cab clearances and in other conditions encountered in the actual operation of locomotives. We can not disregard the fact that thousands of the smaller types of locomotives are now in storage and will in all probability never again be used. * * *.

The evidence on which the above is based will be dealt with in the next chapter. But, from what has already been shown it will be realized that the size and weight of the valve motion parts of locomotives and the speed and tractive effort developed are elements which vary with the size of a locomotive and have a direct relation to the hard handling of, and stresses upon, the hand lever. So that, it is clear that the Commission's "line of demarcation" based on size or weight of locomotive was a rational one.

The statement in the *Napier Case,* 272 U. S. 605, 613, that the rules to be prescribed "need not be uniform throughout the United States; or at all seasons; or for all classes of service" shows that, in making such rules, there is latitude for rational differentiation. And as said in the *Assigned Car Cases,* 274 U. S. 563, 583:

> * * * But in establishing a rule of general application, it is not a condition of its validity that there be adduced evidence of its appropriateness in respect to every railroad to which it will be applicable. In this connection, the Commission, like other legislators, may reason from the particular to the general.

Appellees further suggested that, in order to conform the relief granted with that sought under the Boiler Inspection Act, the Commission was required to find that past use of locomotives equipped with "hand reverse" had been unsafe and that present use thereof at the moment of entry of its order was unsafe, requiring an immediate suspension of operations of all locomotives in service equipped with "hand reverse." Concerning past operations, there seems no reason for the belief that the Commission's rules for the future required a supporting finding that at some time in the past and during its earlier stage of development "power reverse" should have been substituted for "hand reverse." Concerning operations at the moment of entry of the Commission's order, it would be a rigid construction of the Commission's rule making duties under the Act to assume that it must, upon adopting a general rule governing the fitness of locomotives for service, require immediate compliance therewith. Of course no such restriction is imposed upon the rule making discretion. The prescription by legislative or regulatory authority

of electric headlights as equipment on locomotives affords for comparison a similar situation. Such headlights were first required by certain States (*Atlantic Coast Line R. R.* v. *Georgia,* 234 U. S. 280; *Vandalia R. R.* v. *Pub. Serv. Comm.,* 242 U. S. 255) and subsequently by rules of the Commission, designating "intensity and devices". *Napier Case,* 272 U. S. 605, footnote p. 609. It will not be urged that oil burning headlights, or electric headlights of different intensity, in use on the railroads should have been found to have been unsafe in the past, or that the Commission should have required immediate suspension of all further operations of locomotives until the prescribed headlights were installed.

**4. The action of the lower court, setting aside the order, constituted substitution of the court's judgment for that of the Commission**

As heretofore said, while the lower court sustained the Commission's statutory authority to make the order, it held the order to be invalid on the grounds, apparently, that it was not supported by the evidence and that the Commission had

> acted arbitrarily respecting the comparative potentialities of important facts established and/or by ignoring "the indisputable character of the evidence" *I. C. C.* v. *Louisville & Nashville R. Co., supra.* To refuse to consider pertinent evidence introduced is arbitrary action. *Chicago Junction Case,* 264 U. S. 258, 267, 44 S. Ct. 317, 68 L. Ed. 667.

> The distinction between refusal to heed, and palpable neglect to give, substantial evidence the weight it manifestly carries, in casting up the affirmative and negative matters in the testimony, is immaterial—either is arbitrary. (R. 210.)

The Court referred to the doctrine that, in reviewing an order of a tribunal to whose judgment regulatory matters are committed by statute, it could not weigh the evidence, nor inquire into the soundness of the reasoning, nor question the wisdom of the regulations (*Chi. R. I. & Pac. Ry.* v. *U. S.*, 274 U. S. 29, 33; *Western Paper Makers Chem. Co.* v. *U. S.*, 271 U. S. 268, 271; *I. C. C.* v. *Ill. Cent. R. R.*, 215 U. S. 452, 471; *U. S.* v. *New River Co.*, 265 U. S. 533, 542); but stated that it might, however, regard the fact situation to determine whether the tribunal had acted arbitrarily, or inconsiderately in some particular, citing as authority *B. & O. R. R.* v. *U. S.*, 264 U. S. 258; *I. C. C.* v. *L. & N. R. R.*, 227 U. S. 88, 90; *U. S.* v. *Abilene & So. R. R.*, 265 U. S. 274; *A. T. & S. F. Ry.* v. *U. S.*, 284 U. S. 248. The Court further said (R. 209–210):

> * * * It cannot be disputed that the commission hearing an issue of the character raised by the complainant, and leading to the order under consideration, sat under the limitations of a judicial body, and became in the process of fact finding virtually a jury bound to use the applicable criteria controlling jurors in the weighing of the probative force

> of matters of evidence. That the commission is an administrative tribunal "appointed by law and informed by experience" does not differentiate it in this respect from a jury at law. * * *

The above statement suggests an important difference between the Commission and a jury, namely, that a jury would not be "informed by experience" in a matter such as involved here. Since, however, the Commission did use the "applicable criteria", the only point, which it is desired to emphasize, is that the Commission, a body informed as to all phases of railroad operations and as to safety appliances and rules (and their functioning) prescribed by, or under, this and other Acts, was better able than either a jury, or the lower court, to weigh the probative force of the evidence in its bearing on the safety of travellers and safety of employees, whether operating the locomotives or otherwise engaged, and to comprehend its import in connection with the operation of locomotives in passenger, freight or switching service, in the yards or in the roundhouse.

The doctrine, announced by the first of the above two groups of cases referred to by the lower court, to the effect that in reviewing orders of a regulatory tribunal, the courts should not weigh the evidence, nor inquire into the soundness of the reasoning, nor question the wisdom of the regulations, is so familiar and so commonly recognized as an essential foundation to administrative law that the

statement thereof in the lower court's opinion needs no amplification. The second group of cases, namely, those cited by the court as authority for the action taken by it, of course, announce no different doctrine.[14] For example, in *Atchison, T. & S. F. Ry.* v. *U. S.* (the *Grain Rates Case*), 284 U. S. 248, this Court, while holding that the Commission's denial of the carriers' petition for rehearing amounted to the denial of a right, because of the radically changed economic situation since the closing of the record in 1928, nevertheless, took occasion to say (p. 262) that the Commission had wide administrative powers, "with the exercise of which, upon evidence, and within its statutory limits, the courts do not interfere" and that its important functions "to enforce public rights are not to be denied or impaired." In *I. C. C.* v. *L. & N. R. R.*, 227 U. S. 88 (also cited by the lower court) this Court,

[14] In *U. S.* v. *Abilene & So. R. R.* (the *Orient Divisions Case*) 265 U. S. 274, the Commission admittedly had used data taken from the carriers' annual reports which were on file with it but not introduced in evidence. It was held that such annual reports could not be treated as evidence when not introduced as such. In *B. & O. R. R.* v. *U. S.* (the *Chicago Junction Case*) 264 U. S. 258, motions to dismiss the bill of complaint had the legal effect of admitting its allegation that the essential finding of "public interests" was wholly unsupported by evidence. The Court, after stating that either to refuse to consider evidence or to make an essential finding without supporting evidence was arbitrary action, held that "as it was admitted by the motion that the order was unsupported by evidence, and since such an order is void, there is no occasion to consider the other grounds of invalidity asserted by plaintiffs."

in disposing of the contention that following the Hepburn Amendment of 1906 to the Interstate Commerce Act, a rate order of the Commission, based on its opinion that the displaced rates were unreasonable, was conclusive upon the courts even though its opinion was wholly without substantial evidence to support it, said among other things (p. 91): "that administrative orders, quasi judicial in character, are void if a hearing was denied; if that granted was inadequate or manifestly unfair; if the finding was contrary to the indisputable character of the evidence." But the decision, when reaching discussion of the record, held in substance that there was no denial shown of a full and fair hearing or absence of substantial evidence, its concluding words stating (p. 100) that the Commission's order

> was not arbitrary but sustained by substantial though conflicting evidence. The Courts cannot settle the conflict nor put their judgment against that of the rate making body, and the decree is Reversed.

As above indicated and, as shown by its conclusions of law (R. 223, 224), the lower court's holding that the Commission acted arbitrarily and, therefore, unlawfully was based on the grounds:

> That it failed and refused to consider and give legal effect to pertinent, substantial, and uncontradicted evidence having an important and controlling bearing on the issue;

That it reached conclusions and acted contrary to the indisputable character of the evidence;

That its report and order was unsupported by any substantial evidence in the record.

As grounds for holding Commission action *arbitrary* and *unlawful,* its failure or refusal to consider pertinent, etc., evidence, its action or conclusions contrary to the indisputable character of the evidence, or unsupported by any substantial evidence, must really appear; for, otherwise, the doctrine that a court should not weigh the evidence or substitute its judgment necessarily altogether loses substance; which, it is plain from the lower court's opinion and its findings of fact, is the thing that happened here.

**(a) There was neither refusal nor failure by the Commission to consider any of appellees' evidence, nor were its conclusions and action without support of substantial evidence or contrary to its indisputable character; the lower court weighed the evidence and, misconceiving its import, arrived at different conclusions from those of the regulatory body**

The reason for the doctrine that a court should not substitute its judgment on the facts is demonstrated throughout the lower court's opinion by its failure to grasp the significance of the evidence in many particulars and its import generally. Early in its discussion of the evidence the Court said in effect that the Commission had employed a quan-

titative instead of a qualitative standard, giving the same consideration to a slight or temporary injury as to a serious or permanent one, when comparing the merits as to safety of the two kinds of reversing gear. (R. 210.)

In this, the lower court was doubtless referring to the Commission's statement that the record showed 1,116 injuries due to reverse gear for the five years from 1925 to 1929, and that the proportion thereof on "hand reverse" locomotives is illustrated by the fact that for the two years 1929 and 1930, during which period there were about the same number of locomotives in service with "power reverse" as with "hand reverse", out of a total of 232 cases, 216 occurred on "hand reverse" locomotives and 16 on "power reverse" locomotives.[15] The lower court's opinion later specifically referred (R. 214) to the Commission's said statement and said that it showed that the Commission "was concerned only with the safety of engineers and firemen" it being based (footnote same page) on "Exhibit 13, Form T report (Injuries, Reverse levers, operating)", and further said that "Consideration of the question of safety should not be limited to dangers to cab stationed employees only." The court correctly described the Commission's said statement as covering only injuries from the re-

[15] Exhibit 53 (R. 1429), Ex. 13 (R. 1420) and Ex. 49 (R. 1429), being the "Form T" accident reports exhibits described at page 14, *supra*.

verse gear to men in the cab, but there seems to be no good reason why it should ascribe to that fact that the Commission confined its consideration to cab stationed employees in disregard of the evidence of other kinds of injuries. The Commission undoubtedly distinguished the direct injuries and hazards from the "bar" to engineers and firemen when in the cab and operating the locomotives from injuries to those men and others when otherwise engaged, in which reverse gear was involved. This is, in fact, shown by a later statement in its report (R. 55), reading that:

> Most of the accidents recorded as due to hand reverse gears occurred to employees while handling the reverse gear, whereas only a small percentage of the accidents attributed to power reverse gears occurred to men operating the reverse gear, the others having occurred to persons on, around, or in the path of the moving locomotive.

This later statement, covering both oral and documentary evidence, was a finding to the effect that, as contrasted with "hand reverse" accidents, only a small percentage of accidents attributed to "power reverse" occurred to men operating the gear, the others occurring to men on, around or in the path of the locomotives. The earlier statement based on the exhibits from "form T" reports of injuries to employees while operating the locomotives, item, "Reverse lever, operating", was a finding to the effect that the number of such direct

injuries to the men in the cab from "hand reverse", on the one hand, and "power reverse", on the other hand, was illustrated by the ratio of 216 to 16. In both said statements the Commission was emphasizing that the hand reverse injuries were injuries directly caused by the gear and against which the men in the cab, operating locomotives and train, had no effective means of safeguarding themselves. On this the Commission said (R. 56):

> Frequent reference is made in the record to the extent to which the injuries attributable to the hand reverse lever could be avoided if the engineer would be more careful as to where he places his arms and legs while operating a locomotive equipped with hand reverse gear. However, in actual operation and with the varied and frequent movements which the engineer is required to make in order to perform his duties properly, he can not constantly keep clear of the reverse gear in the cab. In theory this might be possible, but in actual practice it can not reasonably be expected. The engineer or other person operating the locomotive is as a matter of actual fact constantly subjected to whatever hazard exists in operating the hand reverse gear, and under many circumstances he has no way of effectively guarding against injury.

The Commission had theretofore (R. 55) described the conditions as to "clearance" between the hand lever, the boiler head, the back and sides

of the cab on various locomotives and had further said: "The fact that the hand reverse lever does suddenly move without warning to the engineer and from various causes and that many injuries have resulted from such movements is clearly established by the evidence."

And it later said (R. 58):

> Complainants urge that there is no liability of injury to the engineer in the cab due to action of the reverse gear on locomotives equipped with power reverse gear. They also contend that the power reverse gear promotes safety by making it possible for the engineer constantly to observe signals. In this connection it is said that with hand reverse gear it is necessary that the engineer bring his head and body inside of the cab in order to move the reverse gear, whereas with power reverse gear it is practicable for him to reverse the engine without losing sight of signals and men who may be working around the locomotive.

It is the duty of engineers to maintain constant "look out." The record contains repeated statements by engineers that when operating the hand lever, their attention is diverted from signals or "look out" duties. (R. 242, 255, 259, 264, 267, 274.) While the evidence did not show that there was *no* liability of injury to the engineers in the cab due to action of the reverse gear on locomotives equipped with power reverse, its showing was tantamount to that, and it is plain from the Com-

mission's findings that it considered that the use of "power reverse" practically eliminated such injuries and removed from the men in the cab the constant hazard thereof. The fact that the Commission laid stress on this does not mean, as inferred by the lower court, that it closed its eyes to the carriers' evidence of injuries of another sort in which "power reverse" was in one way or another involved. A large part of its report, as will be shown, was devoted to discussion of that evidence. It seems too clear for argument that such distinction as was made by the Commission between injuries to engineers and firemen when in the cab and injuries to the *same* men or other men when oiling or working around the parts of, or when in the path of, the locomotives was not a distinction based simply on a difference in employees as persons, which appears to be substantially the thought of the lower court.

Reverting to the Court's statement that the Commission, in reaching its determination, employed a quantitative rather than a qualitative standard, it is again emphasized that the Commission was laying quite as much stress on the "exceeding few" injuries and absence of hazard shown to engineers operating with "power reverse" as it was on the many injuries shown when operating with "hand reverse"; that is to say, that it considered that the use of "power reverse" practically eliminated the accidents caused by reversing

gear to the men in the cab. As to the many injuries caused by "hand reverse" the lower court comments that their number was small when distributed over all "hand reverse" engines. But certainly, by comparison with the condition of freedom therefrom under which an engineer operates a "power reverse" engine, this is not true.[16] And the Court overlooked the constant hazard of injuries and strain to which an engineer operating with "hand reverse" is subjected; overlooked the fact that what it spoke of as the Commission's "tallying" of injuries by number included only those which the men in the cab had been unable to escape; and overlooked the fact that the engineer, relieved mentally of such hazard and physically of the fatigue of handling the bar as well as the actual injuries, would be in a far better mental and physical condition to perform his duties of great responsibility.

The record shows that the hand reverse gear subjects the men in the cab to many injuries and which are directly attributable to it. Speaking of complainant's oral testimony of 48 illustrative cases, the Court said (R. 211):

> * * * there were two casualties producing permanent injury. The rest were

[16] Applying ratio of 216 to 16 to the 1,116 injuries for 5 years 1925 to 1929, 981 such direct injuries to engineers and firemen are shown from operating locomotives with the hand lever appliance.

much less serious, very many of them comparatively trivial, although there were several hernias and also cases of broken bones.

Among the 48 cases there were 13 hernias or ruptures, if including in that class engineer Kinnaird's case of muscles torn from the pelvic bone requiring him to support his abdomen with his hands (R. 387), and 13 bone fractures, including one broken and mashed finger, two broken wrists, a broken foot and the rest being broken arms, legs or knees, some of them of the multiple type. As to the remaining 22 accidents, consisting of torn ligaments, sprained backs or bruised bones, few can be classed as trivial. And the point is that the whole showing of ruptures, bone fractures, wrenched and torn ligaments and bruised bones was meant to depict the kind of injuries to which an engineer is subjected when operating with "hand reverse" and from which he is free when operating with "power reverse." Going to the documentary evidence consisting of the accident reports by the carriers for the two years 1929 and 1930 (Ex. 13, R. 1420–1486) the same picture is shown, particularly if they are read, keeping in mind that the descriptions of injuries are necessarily brief and that many of them necessarily report only the *probable* time of disability. For example, bruises or contusions reported as causing disability (actual or probable) of 14 days, of 40 days, of 30 days, of 15 days, of 32 days, of 21

days, etc.,[17] are not just ordinary "bumps." And reported "probable disability" on account of ruptures or hernias of 15 days or even 60 days should be read in light of the fact that the accident reports are filed monthly and that, accordingly, the reported period of probable disability may have to be in such cases (and many others) a very broad estimate. However, what obviously should be mainly kept in mind is that the reverse gear is one of the appliances for operation and control of the locomotive. A showing that, with respect to such an appliance, engineers are subjected to bruised bodies or bones (disabling for many days) torn ligaments, sprains, ruptures and fractured bones and must operate their engines under the stress of such things, does not have to be accompanied by a showing that the injuries are permanent in order to be convinced that another appliance, shown to practically eliminate such injuries and remove from the engineers the hazards thereof, is promotive of the safety of the engineers and the safe operation of locomotives and trains. The carriers' evidence of injuries of another sort in which "power reverse" was in one way or another involved was given full consideration, and the fact that it was not regarded as overweighing the many direct injuries and haz-

[17] As illustrative see R. 167, item 5 (R. 1422, sheet 85; R. 168, item 21 (R. 1427, sheet 3); R. 171, item 63 (R. 1437), sheet 4.)

ard of such injuries to engineers [18] from the handling of an appliance necessary to operation of the locomotive, neither shows lack of a qualitative weighing of the evidence nor refusal to consider evidence.

In fact, it is believed that the lower court either missed what would seem to be the most important phase of the case or that its reasoning or judgment in respect thereof was different from that of the Commission.

While perhaps not directly material, attention is called to certain other statements made early in the lower court's opinion. Speaking of the oral testimony of injuries (R. 210, 211) the Court said: "As we count them, forty-eight persons were injured on engines equipped with hand gear, and forty-seven when the gears were power actuated." This, taken together with the Court's statements shortly following (R. 211) that of the 232 accidents shown by Exhibit 13.

> 190 were in locomotives equipped with hand gears, other than hand screw gears, and not

[18] The tendency of the "hand bar" to develop hard handling and violent movements is shown graphically by much general testimony. R. 241, 253–254, 259, 296, 305, 314, 321, 328, 337, 344, 353, 359, 362, 393, 365, 402, 412, 416, 1354. R. 423, 426, 432, 760, 761, 439, 478, 1370. This general showing of the action of the bar supplements the testimony as to its behavior at the time of the actual injuries, which would seem to be beyond dispute since it is shown to be the direct cause of the injuries. Also Exhibits 13 and 53 establish the same thing.

> already covered by oral testimony, 11 were in connection with power reverse gears, 3 with hand screw gears. Giving this secondary and documentary testimony, the same acceptance enjoyed by oral testimony, although respondents were deprived of the right of cross examination,[19] the count of physical injuries shown favors the complainants in the approximate ratio of over three to one.[20]

leads to the conclusion that the court based its ratio on the assumption that the complainants' and defendants' oral testimony of injuries covered like periods of time. There is no basis for this assumption; and, moreover, the fact that complainants' oral testimony was introduced merely as illustrative of the injuries, and circumstances surrounding them, and not as exhaustive, is made plain by the record. Applying the ratio of 216 hand reverse injuries to 16 power reverse injuries, shown by Exhibit 13 for the two years 1929 and 1930, to the 1,116 injuries (both hand and power reverse) shown by Exhibit 53 for the 5 years 1925 to 1929, it would appear that there were 981 injuries to the men in the cab caused by hand reverse gear. From this it

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[19] The court is referring to the fact that all the injuries covered by the carriers' accident reports were not shown by witnesses. These reports were made in the course of business and, as filed by the carriers pursuant to law were public records.

[20] The court's ratio of 3 to 1 is inaccurate even as based on the injuries shown by the exhibits plus those shown by the oral testimony.

is apparent that complainants' oral testimony covering 48 injuries, which go back about 5 years, was not introduced as exhaustive of that or any period. And since this is true and since, as aforesaid, complainants' oral testimony of injuries, on the one hand, and the carriers' oral testimony of injuries, on the other hand, were not for like periods, there could be no basis for including them, as did the lower court, along with the injuries shown by the "Form T" accident reports in making a comparison of the number of injuries attributable to the respective kinds of reverse gear.

In short, the only basis of comparison afforded by the record was the exhibits from the accident reports filed by the carriers pursuant to law and, while the showing of these exhibits was of direct injuries, it cannot be doubted that they constituted a sound basis as illustrative of the proportion of such direct injuries to engineers and firemen when operating with the hand lever.

**The carriers' evidence relating to injuries to employees when working around, or when in the path of, locomotives equipped with "power reverse"**

Concerning the carrier's evidence of injuries occurring to employees when around, or in the path of, "power reverse" locomotives: As shown by discussion in the Commission's report (R. 56 to 59), they consist, broadly stated, of three general classes. When locomotives are around the terminals or roundhouses and air pumps not working, absence

of air in the power gear cylinder allows the parts to settle and, in that situation, the quadrant in the cab does not show the position of the valves in the steam piston cylinders. Appellees' evidence shows a fatality occurring in 1916 in which such circumstances were involved. It appears that a "hostler" in attempting to move an engine from the roundhouse, started up the air compressors and after the gauge showed 40 pounds of air pulled the lever into back motion, but the air pressure was insufficient to cause the gear to function, and the engine went ahead into the roundhouse wall, killing a man who was working at a desk. Following this accident, it seems that his company has equipped engines of the larger size with an indicator which shows whether the air reverse has responded, and that he, when now taking an engine from the roundhouse, throws his reverse back and forth several times before opening the throttle. He testified (R. 643):

> I do not think I have ever received any instructions to throw the reverse back and forth two or three times when I first get on the engine, but I have always done that since the accident. On those large engines there is now a lever which indicates the reverse, but that was not on this engine with which I had the accident.

Further in this connection, Witness Hall, General Superintendent of Motive Power of the Chicago and North Western Railway, testified (R. 1228):

> In the case of a power reverse gear where the air moved the wrong way, if he got his pressure and tried his gear, and got down and looked at it, it would be an oversight. We require our hostlers or anybody else going on an engine to know whether the gear is in good operating order or not before he gives it any steam. They are also supposed to test the air. I have known of engines equipped with the hand reverse gear going into the turntable pit and also of engines equipped with power reverse gear doing the same thing because some fellow misjudged his distance or had a slippery rail.

The second general class of accidents covered by the carriers' evidence was of injuries (including fatalities) caused by the starting up of the air compressors, or by the lever being put in reverse when engineer, fireman, or other employee was oiling or working around the valve gear parts. As said in the preliminary statement, such accidents around the parts of a locomotive are plainly avoidable by adequate signalling or other measures insuring that the men are clear thereof before they are put in motion, and that is the only way they are avoidable, in whatsoever manner those parts are put in motion. The carriers contended, however, that with hand reverse gear the presence of an obstruction such as the arm or head of a man could be detected by the engineer, whereas, with power reverse gear, it could not be detected. As to this contention

the Commission said in its report that it did not think the theory was sound that an obstruction such as a man's head or arm could be detected by the resistance offered to the hand lever in time to avoid injury. Commenting on this finding of the Commission the lower court said (R. 212):

> There is something more than theory in this claim if it is a fact there is potency in it on the question of comparative safety. Two witnesses operating levers testified to the feeling, one being a case where an engineer's head was the obstruction, and much opinion from the men experienced with both kinds of gears. It is also supported by reason—the presence of an obstruction is directly notified to the operator of a lever, whereas the operating wheel simply starts insensate machinery into operation.

Witnesses who testified that they had felt such obstructions based their opinions upon the obstruction which they had experienced from boards, buggy bars, bolts, nuts, or other metallic obstructions (R. 1128, 1129, 1098), none having experienced catching a human arm or head. The lower court was in error in stating that any witness testified that he had felt the obstruction of a man's head, and probably referred to the statement made by Witness McGuire (R. 714) who in describing an injury to an engineer's head, said that he heard the fireman remark that he felt the obstruction when he caught his head. From this witness' de-

scription of the incident, it would appear that the engineer, after directing the fireman to put the lever into forward motion, placed his head between the lift arm and the front driving spring and, when the fireman, following instructions, moved the lever, "the lift arm caught the engineer's head between itself and the driving spring and, as that happened, the engineer halloed", and the fireman moved the lever back again. However, from details later given, it is not satisfyingly clear that the witness observed the incident correctly, that is to say, that the engineer placed his head in that position or did more than "shove his head against the end of the spring." (R. 715.) In any event it seems altogether unbelievable that the fireman felt the obstruction of the engineer's head since, as later stated by the witness, the end of the spring just cut the skin enough to make it bleed, and the skin on the left side of his head was not broken and it was less than an hour afterwards that he went out on his run.

As to the power reverse being insensate machinery and the hand reverse different in this respect, it should be kept in mind that, even though counterbalanced,[21] the engineer moves approximately 2,000 pounds in weight of parts with the hand lever and necessarily there would be no sensitive response to yielding objects such as the arm or head of a man.

[21] As to the working of the counterbalance see R. 239.

The third general class of cases advanced by the carriers as showing that power reverse was unsafe were instances where, because of breakage of air pipes or other reason for failure of air, power gears were inoperative. It should be kept in mind that this is of no significance in the operation of trains, for the air brakes on the entire train so function as to be automatically applied when "air is lost." Only when engines move unexpectedly [22] or are "running light" and there is absence, or failure, of air, would there be any occasion to attempt to reverse the gear in an effort to stop the locomotive. For this purpose, and as an auxiliary source of power for the gear in case of air failure, steam connections into the air power cylinder are provided on many locomotives. The instances of accidents pointed to by the carriers on engines having such steam connections show either that this auxiliary was not maintained in workable condition or that its operating valves were not placed in a convenient location for prompt use by the engineer.[23] (R. 816, 817, 1089, 1538, 1104, 1319, 1320.) It is for this reason that the Commission's order includes the requirement that power reverse gear should have suitable connections with the operating valves conveniently located in the cab

[22] It appears that hand brakes are used on some engines. (R. 816.)

[23] Witness Cooksey said "We still have steam connections, but the operating valve is inside the cab now." (R. 818, 819; see also R. 1094.)

and so arranged and maintained that in case of air failure steam may be quickly used to operate the reverse gear.[24] Where the engine is under any speed it seems apparent, too, that there would be more likelihood of stopping it with steam power reverse than with the hand lever and less likelihood of injury to the engineer in making the attempt. (R. 815–819.)

A considerable amount of the carriers' testimony was devoted to showing that "power reverse" was subject to a fault termed "creeping", namely, a moving of the mechanism and valve parts without adjustment of the operating lever which causes an undesired change in the point of cut-off of steam through the ports into the cylinders. The matter emphasized in respect of "creeping" was that, because thus interfering with the accurate regulation by the engineer of the valve travel or cut-off, it resulted in excessive consumption of fuel and water. The lower court, speaking of the Commission's statement that "the fault termed creeping causes no accidents and resolves itself largely into a question of proper maintenance," said that this was "inexplicable in the face of its showing that at least one death was so brought about, as well as several severe injuries—in one instance involving total disability. One other death appears, but less clearly, to have been so caused." (R. 215.)

[24] Specifications of U. S. Railroad Administration required such steam connections.

The Commission was not referring, as the Court seemed to believe, to the situations earlier described by it (R. 56, 57) of engines in the terminals or roundhouses with air compressors not working or just being started up, where because of the settling of the valve gear parts or of insufficient air poundage being pumped up, the valves in the steam cylinders would not be in a position corresponding to that of the lever in the cab and would not respond to adjustments of the lever. It was referring to "creeping" as that fault is generally understood, namely, as a movement of the valve gear parts when the pumps are working due to leakage of the air power cylinders or other cause, the result being that the valves are not firmly held in a position corresponding to that given by the engineer to the lever in the cab. (R. 1088.)

The only death case in which the word creeping was even used was the Ross case which may be the death which the lower court says appears less clearly to have been caused by creeping. Engineer Ross, accompanied by fireman Lambright, had gotten down from their engine to take out a brake beam and, while doing this, the engine moved causing injuries to Ross from which he later died. It appears from Lambright's testimony (R. 1318) and the Boiler Inspection report (R. 1566–1569) that when they left the cab the lever was in the center of the quadrant; that when Lambright got back in the cab the lever was in full forward motion

and both brake valves in running motion (R. 1508); that the teeth on the lever latch and quadrant were badly worn and the lever could be easily moved to full forward motion without unlatching; that the reverse gear cylinder slide valve was worn and cut and leakage through this valve was sufficient to cause the lever to creep into full forward motion; and that the holes in the lubricator chokes at the steam cylinders were excessive allowing steam pressure to build up against the valves. It will be noted that while the movement of the lever, in the worn condition of the teeth on the latch and quadrant, was spoken of as the creeping of the lever, the fault known as "creeping" in power reverse gear is a moving of the reversing mechanism and valve gear parts without adjustment of lever in cab, that is to say, with the lever firmly fixed in the quadrant, if creeping exists, it does not accurately control the reversing mechanism and gear parts and, through them, the valves in the steam cylinders. This case was not one of "creeping" and with all the many contributing factors of lack of maintenance shown it would be extraordinary to attribute it in any other respect to real failure of "power reverse." It is again emphasized that "creeping" as referred to by the Commission is a moving of the mechanism and parts, without adjustment of lever. It was principally advanced as affecting the engineer's ability to control accurately the position of the valves and therefore wasteful of

fuel and water and sometimes interfering with train schedules. Injuries, properly attributable to this source, were not shown. Obviously the Commission was not intending to cover by the term "creeping" troubles with power reverse of every sort shown to have been encountered in bringing it up to its present state of efficiency.

**The fact that the Commission mentioned that the carriers had in service over 29,000 " power reverse " locomotives, and that their own program was to install " power reverse " on new locomotives, did not show disregard of undisputed testimony or of any testimony**

Following discussion of the carriers' evidence as to accidents in which "power reverse" was involved and of their contention that, because of "creeping", "power reverse" was inefficient, that fault making it difficult to use steam and fuel economically, the Commission made the findings, above referred to, relating to the carriers' contentions.

The kind of responsibility for the accidents shown, which the carriers attributed to "power reverse", should be kept in mind. For example, in the cases of injuries occurring around the parts of the engines, the causes directly responsible were lack of, or inadequacy of, signalling or other measures making sure that the men were clear of the parts before they were put in motion. The responsibility for those injuries, attributed to power reverse, was to the effect that, even though such measures of ordinary care were not taken, still if

the engine had been reversed with the hand lever the engineer would have detected a yielding obstruction such as the head, arm or hand of a man *in time to avoid injury.* In the instances where engines, standing in the yards under steam but without air compressors working, moved unexpectedly, and in the instances of engines running "light" (i. e. without cars) where, because of air pipe breakage, the "power reverse" was rendered inoperative, the responsibility for accidents, attributed to power reverse, was to the effect that, if the engine had been equipped with hand reverse, the reverse gear might have been used for braking purposes, that is, to admit steam into the piston cylinders in reversing motion. With steam connections into the power gear cylinders and operating valves located in the cab, "power reverse" could in such emergency, be similarly used for braking purposes, probably in many instances more effectively and with less likelihood of injury to the engineer.

In the instances advanced as showing "power reverse" less safe than "hand reverse", always there appear inadequate operating rules or lack of usual and ordinary care. In the operation of a locomotive, adequate operating rules looking to signalling and measures of ordinary care are always necessary, in whatsoever manner the engine or its parts are put in motion. Even in the particulars, relied upon by appellees for their contrary position,

[25] R. 1164, 1166, 1137.

power reverse has its advantages; and as practically eliminating the repeated injuries directly caused by the hand lever to the engineer, responsible for safe operation of the locomotive whether in the yards or on the road, "power reverse" is established beyond question by the record as the safer appliance. The Commission's report continued as follows (R. 59):

> Counsel upon brief refer to our language in *Public Utilities Commission of Ohio* v. *Pennsylvania R. Co.*, 151 I. C. C. 448, 464, with reference to the relative importance of serious or fatal injuries. The conclusions here reached in no way conflict with the principle there announced. Aside from the evidence of record we cannot believe that the carriers would contemplate the continued use of over 29,000 steam locomotives with power reverse gear, and contemplate the application of power reverse gear on new locomotives, if those in charge of the construction and operation of locomotives actually and sincerely believed that power reverse gear is less safe or less efficient than hand-operated reverse gear.

The lower court, referring to the last sentence of the above, said (R. 212):

> This observation convicts the Commission of a clear disregard of undisputed testimony, and of the use, to support its conclusions of such testimony in violation of its true import.

The court's opinion goes on to say that it was uncontradicted that the carriers had for 20 years or more been preferring "power reverse" over "hand reverse" in more powerful engines, not because the former were found intrinsically safer, but for the reason that the enlarged boiler capacity, sought for in later engines, restricts very materially cab space and therefore makes against the use of manual apparatus. The Commission's report had referred (R. 56) to the carriers' explanation that power reverse had been installed, not with the thought of promoting safety but "due to the increasing size of locomotives and because the limited clearance between the boiler and the side of the cab renders it impracticable to apply hand reverse gear."

Undoubtedly the increasing size of locomotives and their wider boilers was largely responsible for the devising of "power reverse", its installation and growing use. But, if the lower court means by its statement that the carriers' preference for "power reverse" during 20 years had been solely in respect of the heavier engines and governed alone by the impracticability features of installing and using "hand reserve" on such engines, it is doubted that the carriers intended that their testimony should be taken in this way.

As said in the preliminary statement, the record shows, on the one hand, that locomotives weighing on drivers as much as from 200,000 to 250,000 include a substantial proportion equipped with

"hand reverse" gear and that, on the other hand, locomotives weighing on drivers below 150,000 and down to 100,000 include a substantial proportion equipped with "power reverse" gear. (Ex. 10, sheet 4, Vol. of Special Exhibits.) An examination of Exhibit 58 (R. 1501–1535) shows many instances of locomotives of the same weight and in the same type of service equipped in part with "hand reverse" and in part with "power reverse". Of course locomotives weighing on drivers from 200,000 pounds to 250,000 pounds are recognized as heavy locomotives, but the large number of locomotives of such weight shown to be equipped with hand levers would seem to demonstrate that it was not alone the question of practicability that lead to the equipping of much the same number of locomotives of the same weight with "power reverse." The matter of limited "cab clearance" is a feature of danger with respect both to the heavier and lighter engines, particularly stressed in the evidence. It bears, too, not alone on safety but also on efficiency. In this connection attention is called to the fact that Exhibit 58 (R. 1516) shows that all but 19 of the locomotives owned by the Illinois Central within the weight limits of the Commission's order are equipped with power gears. It will be recalled that the Commission's requirements of equipping with "power reverse" covers only engines in road service weighing 150,000 pounds or more and only engines in switching service of 130,-

000 pounds or more. Further in this connection it should be noted that the carriers' own program called for the equipping of over 1,500 more existing locomotives, included among which there are 283 weighing from 100,000 to 150,000 pounds and 869, weighing from 150,000 to 200,000 pounds. (Sheet 4, Ex. 10, Vol. of Special Exhibits.)

Appellees' petition to the lower court states (R. 7) that it is the policy and practice of the railroads to equip new locomotives with "power reverse" gear. Officials, testifying before the Commission, stated that they intended to continue to specify "power reverse" gears in ordering new locomotives. (R. 1005, 1007, 1258, 1290.) In any event, whatever may have been the factors entering into the carriers' widespread adoption of "power reverse", whether of practicability, increased efficiency or safety, there seems no good reason for reading, as did the lower court, the Commission's observation, aforesaid, as meaning that it relied upon the carriers' preference for "power reverse" as showing that they regarded it as intrinsically safer than "hand reverse", or that it had been devised or installed with the thought of promoting safety. On the face of its statement, above quoted, the matter of which the Commission was speaking was the carriers' evidence of injuries and their contentions, based thereon, that power reverse was "less safe" than "hand reverse". What the Commission said was that it could not believe that the

carriers would contemplate the continued use of over 29,000 "power reverse" locomotives and the installation of "power reverse" on new locomotives if they actually regarded "power reverse" as less safe than "hand reverse"; and this was its belief even confining the carriers' reasons for the installation that had been made and their program of installing "power reverse" on new locomotives and 1,500 more existing locomotives to reasons of practicability and efficiency.

Among the lower court's findings of fact (R. 218–223) there is one finding which serves to bring out the conclusions of the Commission. This finding reads (R. 222)—

> In several respects power reverse gears do not make for safety as much as does the hand reverse gear, although the locomotive equipped with either type of gear properly installed and maintained is in proper condition and safe to operate without unnecessary peril to life or limb.

This seems to demonstrate that, upon a summing up of the carrier's injury showing, the court did not consider that it established that "power reverse", properly maintained was unsafe under the Boiler Inspection Act. We do not point to this finding to show that the court's *judgment* was in accord with that of the Commission, but it would seem to dispute that there was any slightest element of arbitrariness in the Commission's conclusions in respect of the carriers' showing of injuries

caused by "power reverse". The Commission's conclusions were that the carriers' evidence failed to show that, even in the respects stressed by them, "power reverse" was less safe than hand reverse and, weighing all the evidence, and it being shown that "power reverse" practically eliminated the numerous injuries and hazard of such injuries to which "hand reverse" directly subjected engineers and firemen, responsible for safe operation of locomotives and trains, the Commission's judgment was that the safety of employees and travelers required the installation of "power reverse" gear. (R. 60.)

**The evidence and testimony in respect of hand screw reverse gear**

Contrary to the lower court's view there was a large amount of testimony supporting the Commission's order in respect of "hand reverse" of the screw gear type. The lower court's opinion refers (R. 213) to that part of the Commission's discussion of "hand lever" injuries relating to limited cab clearance and the "jumping" of the lever from its quadrant. The screw gear wheel does not, it is true, subject firemen to injuries from this cause, but in other respects it subjects him to injuries and all (and perhaps more) of the overstrain and fatigue caused by operating with the hand lever, and diverting him from his duties. The following testimony is given as illustrative of the above. Witness Irwin's testimony reads in part (R. 266–267):

* * * From the experience I have had with the manual screw, it is very hard to reverse. You have to get up, and you haven't much room back of you. The cabs are very short back of you. You get hold of the wheel with both hands and crank that over eight or nine times in order to reverse the engine. * * *. You have to move the whole motion of that tumbling shaft and reverse that valve. Many times I have hit my knuckles on the window frame. It doesn't come in contact with anything on the other side. As to whether we can take our time in turning this wheel, everything in our service is production now. The wheel works very hard on many locomotives. They have some that you could turn with one hand, but, again, you might run that engine for four or five hours on your trip and finally it would get so you could not turn it with both hands, or it would be all you could do to get it over with both hands. With the manual screw, when you operate the wheel you have to move all parts of the valve motion and tumbling shaft. * * * . The difficulty of operating manual screw is caused by the fact that the thread on the screw is pretty heavy. You pull the reach rod quite a way at each turn of the wheel. I imagine the large thread would be harder to turn than smaller thread along with the other parts of the valve motion that come in contact with the motion of the screw reverse. (T. 217–223). * * *.

I am not able to reverse either the manual bar or screw while sitting down. The screw

reverse is in front of me but I have to stand up to reverse the engine. I am not able to keep my attention on the men on the ground while I am doing that.

I was injured by operating a manual screw reverse on August 6, 1928, near Butler, Pa., in freight service on engine 259. I was reversing the engine when a strain caused a hernia and I was operated on and was off duty about three months. I do not know what caused the wheel to work hard on that occasion any more than at any other time. It had worked hard all night. The wheel did not catch me. The strain that was on the lower part of my abdomen caused the hernia, and the pulling of this wheel caused the strain. I have had very little experience with power reverse but have had some power-reversed engines and I have never felt any such strain with power reverse as I had on the occasion when I was injured. In my judgment it is not possible for power reverse to operate so as to cause such a strain.

On cross-examination he said among other things (R. 269):

* * * As to whether it would be a physical possibility to look out of the cab window while I am stooped over turning that gear, I wouldn't say that I could do the work, handle a reverse gear of that kind, and still be watching out for signals. I couldn't do it. I can't say that I ever tried to do it * * *.

> I had never had a hernia previous to the one I received reversing my locomotive. I went to the hospital and was operated on. As near as I can tell you it was caused by the continual pulling I did on that gear which worked so hard on that particular day, the same as any overexertion might cause a hernia by any heavy or continuous strain. I made out an accident report and gave as the cause the reversing of the engine.

Witness Hurd testified in part (R. 274):

> With our manual screw it takes 21 turns of the wheel to reverse the engine. That interferes with your lookout duties, because in a back-up movement you have to get your signal and then come in and make your move with the wheel, and you don't want to make too many moves on account of the brakeman giving a missed signal. You want to get all of them while he is giving them to you.

Following this he testified as to an accident in which he, the brakeman and fireman were scalded (See also Boiler Inspection Report R. 1205), and then continued:

> I have had experience with manual lever, manual screw, and precision power reverse. Our engines are now about half of them equipped with the precision gear, and as fast as they go into the shop they come out equipped with them. There is no comparison in the relative amount of strength re-

quired to operate the hand operated screw and the power screw. You have air to help you with one, and the other you have to use all manual strength. I have had no trouble whatever operating the precision power reverse. I do not think if we had had the precision screw any one of us would have been hurt on the occasion I described, because it would have torn off outside where the air cylinder is connected to the reach rod. With the manual screw the reach rod is run from the valve motion clear through the cab, but with the precision gear the reach rod runs from the cab only to the air cylinder.

Witness Ginder testified (R. 277–278):

I was injured by operating a manual screw reverse on May 6, 1928, on a work train between Canton and Barberton, engine no. 3064, an N–1 Mikado with Baker valve gear, weighing 238,000 pounds on drivers. It had come from the shop after class 4 repairs. I told them it was not fit to take out and they said it was the only engine they had and I should take it. You could hardly reverse it. When we were at work, the supervisor bawled me out for not handling it right. At noon I called him on the engine and he couldn't budge the wheel. The fireman handled her; I couldn't handle her any more. I couldn't get off my feet after awhile. I had strained my hip reversing it. It had worked so hard. It had just come from shop and everything was new. I was off duty

from May 7 until August 16. The company paid me for lost time.

I have had power-reversed engines new out of the shop, and have not had any similar difficulty in reversing them. I have never been unable to reverse an engine equipped with power reverse. I have had experience with Ragonett and precision gears.

In my opinion power reverse is a lot safer than hand reverse because they are not as hard to handle and there is not as much danger in getting hurt from them.

The above testimony is quoted largely for the purpose of showing that all the evidence with respect to "manual reverse" as bearing on its hard handling, the reasons therefor, the overstrain from operating with it and consequent exposure to injuries and concentration on the reversing gear with resulting diversion from other duties, applies as well to the "hand screw gear" as to the hand lever type.

Similarly as the "hand lever reverse", the "manual screw reverse" is an appliance essential for operation of the locomotive, and the Commission's rejection of it as an "improved device increasing safety to the operator" (R. 214) in any way comparable to "power reverse" was, not only not arbitrary, but was the only sound judgment that could be reached on the record.

**(b) The Commission's report and order shows affirmatively that it gave both consideration and effect to the carriers' financial condition**

The final holding of the lower court was to the effect that the Commission was inconsiderate to the extent of inexcusable neglect in passing over so lightly the carriers' plea of financial distress, the Court saying that the Commission's response to that part of the carriers' defense was (R. 217):

> Nor are we unmindful of the financial condition of the carriers, which was strongly urged as a reason for denial of the relief here sought. But we can not believe the present financial condition will be permanent and we are convinced that action should now be initiated to afford relief in the future from the conditions complained of. (190 I. C. C. 362.)

The Commission gave full consideration to the carriers' financial condition. The matter in its report dealing with this question reads as follows:

> Defendants urge that the carriers generally are in such financial condition that they should not be required to make the expenditure necessary to apply power reverse gears.
>
> As a practical matter we are, in the main, looking to the future in the consideration of this case. The rule established herein with respect to locomotives now owned by the carriers is that those having more than a specified weight on driving wheels be equipped with power reverse gear when they are

shopped for class 3, or heavier, repairs. Our last annual report shows that there were at that time 9,840 locomotives stored in serviceable condition and 6,442 others out of service undergoing or awaiting repairs. A large percentage of these locomotives is equipped with hand reverse gear. Whatever expense results from these applications will be distributed among a large number of carriers and spread over a period of approximately four years. A large number of the locomotives equipped with hand reverse gear are now set aside awaiting disposition and will never again be used. Many of the locomotives in service with hand reverse gear will be dismantled before they are again given class 3, or heavier, repairs.

The occurrence of accidents in actual operation of locomotives equipped with hand reverse gear is clearly shown of record. There is a further question before us as to the extent to which the use of any or all steam locomotives equipped with hand reverse gear causes unnecessary peril to life and limb, and whether the application of power reverse gear should be required on all locomotives at this time.

To draw a line of demarcation which will provide the degree of safety contemplated by the law and yet not cause unnecessary expense on the part of the carriers is not easy. While the accident records do not in all cases show the size of the locomotives on which accidents have occurred, they do in-

> dicate that the greater number occurred on the heavier types. This results from the difference in size and weight of parts which must be controlled and operated by the reverse gear, and from differences in speed and cab clearances and in other conditions encountered in the actual operation of locomotives. We cannot disregard the fact that thousands of the smaller types of locomotives are now in storage and will in all probability never again be used. Nor are we unmindful of the financial condition of the carriers, which was strongly urged as a reason for denial of the relief here sought. But we cannot believe the present financial condition will be permanent and we are convinced that action should now be initiated to afford relief in the future from the conditions complained of.

The Commission's statement that a large number of "hand reverse" locomotives are now set aside awaiting disposition and will never again be used, and many in service will be dismantled before they are again given class 3, or heavier, repairs, should not be overlooked. We also call attention to the Commission's statement that "To draw a line of demarcation which will provide the degree of safety contemplated by the law and yet not cause unnecessary expense on the part of the carriers is not easy. * * *. We cannot disregard the fact that thousands of the smaller types of locomotives are now in storage and will in all probability never again

be used. Nor are we unmindful of the financial condition of the carriers, which was strongly urged as a reason for denial of the relief here sought. But we cannot believe the present financial condition will be permanent and we are convinced that action should now be initiated to afford relief in the future from the conditions complained of."

It seems plain from the above that the Commission carefully weighed its grave concern for the carriers' financial condition against the duties placed upon it by the Boiler Inspection Act.

## CONCLUSION

It is respectfully insisted that the decision of the lower court should be reversed, the bill dismissed and the Commission's order sustained.

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DANIEL W. KNOWLTON,
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*Interstate Commerce Commission.*

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## APPENDIX

### STATUTES INVOLVED

The full text of the Boiler Inspection law (as amended) reads:

AN ACT to promote the safety of employees and travelers upon railroads by compelling common carriers engaged in interstate commerce to equip their locomotives with safe and suitable boilers and appurtenances thereto

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* SEC. 1. [*As amended June 7, 1924.*] [*U. S. Code, title 45, sec. 22.*] That when used in this Act the terms "carrier" and "common carrier" mean a common carrier by railroad, or partly by railroad and partly by water, within the continental United States, subject to the Interstate Commerce Act, as amended, excluding street, suburban, and interurban electric railways unless operated as a part of a general railroad system of transportation. The term "railroad" as used in this Act shall include all the roads in use by any common carrier operating a railroad, whether owned or operated under a contract, agreement, or lease, and the term "employees" as used in this Act shall be held to mean persons actually engaged in or connected with the movement of any train.

SEC. 2. [*As amended June 7, 1924.*] [*U. S. Code, title 45, sec. 23.*] That it shall be unlawful for any carrier to use or permit

to be used on its line any locomotive unless said locomotive, its boiler, tender and all parts and appurtenances thereof are in proper condition and safe to operate in the service to which the same are put, that the same may be employed in the active service of such carrier without unnecessary peril to life or limb, and unless said locomotive, its boiler, tender, and all parts and appurtenances thereof have been inspected from time to time in accordance with the provisions of this Act and are able to withstand such test or tests as may be prescribed in the rules and regulations hereinafter provided for.

SEC. 3. [*As amended June 7, 1924*]. [*U. S. Code, title 45, secs 24 and 52.*] That there shall be appointed by the President, by and with the advice and consent of the Senate, a chief inspector and two assistant chief inspectors of locomotive boilers, who shall have general superintendence of the inspectors hereinafter provided for, direct them in the duties hereby imposed upon them, and see that the requirements of this Act and the rules, regulations and instructions made or given hereunder are observed by common carriers subject hereto. The said chief inspector and his two assistants shall be selected with reference to their practical knowledge of the construction and repairing of boilers, and to their fitness and ability to systematize and carry into effect the provisions hereof relating to the inspection and maintenance of locomotive boilers. The chief inspector shall receive a salary of four thousand dollars per year and the assistant chief inspectors shall each receive a salary of three thousand dollars per year; and each of the three shall be paid his traveling ex-

penses incurred in the performance of his duties. The office of the chief inspector shall be in Washington, District of Columbia, and the Interstate Commerce Commission shall provide such legal, technical, stenographic, and clerical help as the business of the offices of the chief inspector and his said assistants may require.

SEC. 4. [*As amended June 7, 1924.*] [*U. S. Code, title 45, secs. 26 and 27.*] That immediately after his appointment and qualification the chief inspector shall divide the territory comprising the several States, the Territories of New Mexico and Arizona, and the District of Columbia into fifty locomotive boiler-inspection districts, so arranged that the service of the inspector appointed for each district shall be most effective, and so that the work required of each inspector shall be substantially the same. Thereupon there shall be appointed by the Interstate Commerce Commission fifty inspectors of locomotive boilers. Said inspectors shall be in the classified service and shall be appointed after competitive examination according to the law and the rules of the Civil Service Commission governing the classified service. The chief inspector shall assign one inspector so appointed to each of the districts hereinbefore named. Each inspector shall receive a salary of one thousand eight hundred dollars per year and his traveling expenses while engaged in the performance of his duty. He shall receive in addition thereto an annual allowance for office rent, stationery, and clerical assistance, to be fixed by the Interstate Commerce Commission, but not to exceed in the case of any district inspector six hundred dollars per year. In order to obtain the most competent inspec-

tors possible, it shall be the duty of the chief inspector to prepare a list of questions to be propounded to applicants with respect to construction, repair, operation, testing, and inspection of locomotive boilers, and their practical experience in such work, which list, being approved by the Interstate Commerce Commission, shall be used by the Civil Service Commission as a part of its examination. No person interested, either directly or indirectly, in any patented article required to be used on any locomotive under supervision or who is intemperate in his habits shall be eligible to hold the office of either chief inspector or assistant or district inspector.

Within the appropriations therefor and subject to the provisions of this Act, the Interstate Commerce Commission may appoint, from time to time, not more than fifteen inspectors in addition to the number authorized in the first paragraph of this section, as the needs of the service may require. Any inspector appointed under this paragraph shall be so assigned by the chief inspector that his service will be most effective.

SEC. 5. [*U. S. Code, title 45, sec. 28.*] That each carrier subject to this Act shall file its rules and instructions for the inspection of locomotive boilers with the chief inspector within three months after the approval of this Act, and after hearing and approval by the Interstate Commerce Commission, such rules and instructions, with such modifications as the Commission requires, shall become obligatory upon such carrier: *Provided, however,* That if any carrier subject to this Act shall fail to file its rules and instructions the chief inspector shall prepare rules and instructions not inconsistent herewith for the inspection of locomotive boilers,

to be observed by such carrier; which rules and instructions, being approved by the Interstate Commerce Commission, and a copy thereof being served upon the president, general manager, or general superintendent of such carrier, shall be obligatory, and a violation thereof punished as hereinafter provided: *Provided also,* That such common carrier may from time to time change the rules and regulations herein provided for, but such change shall not take effect and the new rules and regulations be in force until the same shall have been filed with and approved by the Interstate Commerce Commission. The chief inspector shall also make all needful rules, regulations, and instructions not inconsistent herewith for the conduct of his office and for the government of the district inspectors: *Provided, however,* That all such rules and instructions shall be approved by the Interstate Commerce Commission before they take effect.

SEC. 6. [*U. S. Code, title 45, sec. 29.*] That it shall be the duty of each inspector to become familiar, so far as practicable, with the condition of each locomotive boiler ordinarily housed or repaired in his district, and if any locomotive is ordinarily housed or repaired in two or more districts, then the chief inspector or an assistant shall make such division between inspectors as will avoid the necessity for duplication of work. Each inspector shall make such personal inspection of the locomotive boilers under his care from time to time as may be necessary to fully carry out the provisions of this Act, and as may be consistent with his other duties, but he shall not be required to make such inspections at stated times or at regular intervals. His first duty shall be to see that the carriers

make inspections in accordance with the rules and regulations established or approved by the Interstate Commerce Commission, and that carriers repair the defects which such inspections disclose before the boiler or boilers or appurtenances pertaining thereto are again put in service. To this end each carrier subject to this Act shall file with the inspector in charge, under the oath of the proper officer or employee, a duplicate of the report of each inspection required by such rules and regulations, and shall also file with such inspector, under the oath of the proper officer or employee, a report showing the repair of the defects disclosed by the inspection. The rules and regulations hereinbefore provided for shall prescribe the time at which such reports shall be made. Whenever any district inspector shall, in the performance of his duty, find any locomotive boiler or apparatus pertaining thereto not conforming to the requirements of the law or the rules and regulations established and approved as hereinbefore stated, he shall notify the carrier in writing that the locomotive is not in serviceable condition, and thereafter such boiler shall not be used until in serviceable condition: *Provided,* That a carrier, when notified by an inspector in writing that a locomotive boiler is not in serviceable condition because of defects set out and described in said notice, may, within five days after receiving said notice, appeal to the chief inspector by telegraph or by letter to have said boiler reexamined, and upon receipt of the appeal from the inspector's decision the chief inspector shall assign one of the assistant chief inspectors or any district inspector other than the one from whose decision the appeal is taken to reexamine and in-

spect said boiler within fifteen days from date of notice. If upon such reexamination the boiler is found in serviceable condition, the chief inspector shall immediately notify the carrier in writing, whereupon such boiler may be put into service without further delay; but if the reexamination of said boiler sustains the decision of the district inspector, the chief inspector shall at once notify the carrier owning or operating such locomotive that the appeal from the decision of the inspector is dismissed, and upon the receipt of such notice the carrier may, within thirty days, appeal to the Interstate Commerce Commission, and upon such appeal, and after hearing, said Commission shall have power to revise, modify, or set aside such action of the chief inspector and declare that said locomotive is in serviceable condition and authorize the same to be operated: *Provided further,* That pending either appeal the requirements of the inspector shall be effective.

SEC. 7. [*U. S. Code, title 45, sec. 31.*] That the chief inspector shall make an annual report to the Interstate Commerce Commission of the work done during the year and shall make such recommendations for the betterment of the service as he may desire.

SEC. 8. [*U. S. Code, title 45, secs. 32 and 33.*] That in the case of accident resulting from failure from any cause of a locomotive boiler or its appurtenances, resulting in serious injury or death to one or more persons, a statement forthwith must be made in writing of the fact of such accident, by the carrier owning or operating said locomotive, to the chief inspector; whereupon the facts concerning such accident shall be investigated by the chief inspector or one of his

assistants, or such inspector as the chief inspector may designate for that purpose. And where the locomotive is disabled to the extent that it can not be run by its own steam, the part or parts affected by the said accident shall be preserved by said carrier intact, so far as possible, without hindrance or interference to traffic until after said inspection. The chief inspector or an assistant or the designated inspector making the investigation shall examine or cause to be examined thoroughly the boiler or part affected, making full and detailed report of the cause of the accident to the chief inspector.

The Interstate Commerce Commission may at any time call upon the chief inspector for a report of any accident embraced in this section, and upon the receipt of said report, if it deems it to the public interest, make reports of such investigations, stating the cause of accident, together with such recommendations as it deems proper. Such reports shall be made public in such manner as the Commission deems proper. Neither said report nor any report of said investigation nor any part thereof shall be admitted as evidence or used for any purpose in any suit or action for damages growing out of any matter mentioned in said report or investigation.

SEC. 9. [*U. S. Code, title 45, sec. 34.*] That any common carrier violating this Act or any rule or regulation made under its provisions or any lawful order of any inspector shall be liable to a penalty of one hundred dollars for each and every such violation, to be recovered in a suit or suits to be brought by the United States attorney in the district court of the United States having

jurisdiction in the locality where such violation shall have been committed; and it shall be the duty of such attorneys, subject to the direction of the Attorney General, to bring such suits upon duly verified information being lodged with them, respectively, of such violations having occurred; and it shall be the duty of the chief inspector of locomotive boilers to give information to the proper United States attorney of all violations of this Act coming to his knowledge.

SEC. 10.[27]

[*Act of March 4, 1915, amending act of February 17, 1911.*]

SEC. 1. That section two of the act entitled "An Act to promote the safety of employees and travelers upon railroads by compelling common carriers engaged in interstate commerce to equip their locomotives with safe and suitable boilers and appurtenances thereto", approved February seventeenth, nineteen hundred and eleven, shall apply to and include the entire locomotive and tender and all parts and appurtenances thereof.

SEC. 2. [*U. S. Code, title 45, sec. 30.*] That the chief inspector and the two assistant chief inspectors, together with all the district inspectors, appointed under the Act of February seventeenth, nineteen hundred and eleven, shall inspect and shall have the same powers and duties with respect to all the parts and appurtenances of the locomotive and tender that they now have with respect to the boiler of a locomotive and the appurtenances thereof, and the said Act of February seventeenth, nineteen hundred and eleven, shall apply to and include the entire

[27] Sec. 10 repealed June 7, 1924, 43 Stat. L. 659.

locomotive and tender and all their parts with the same force and effect as it now applies to locomotive boilers and their appurtenances. That upon the passage of this Act all inspectors and applicants for the position of inspector shall be examined touching their qualifications and fitness with respect to the additional duties imposed by this act.

SEC. 3. That nothing in this act shall be held to alter, amend, change, repeal, or modify any other Act of Congress than the said Act of February seventeenth, nineteen hundred and eleven, to which reference is herein specifically made, or any order of the Interstate Commerce Commission promulgated under the safety appliance Act of March second, eighteen hundred and ninety-three, and supplemental Acts.

SEC. 4. That this Act shall take effect six months after its passage, except as otherwise herein provided.

Certain provisions of the Interstate Commerce Act (24 Stat. 379; 41 Stat. 456) above referred to read as follows:

Section 17 (1):

That the Commission may conduct its proceedings in such manner as will best conduce to the proper dispatch of business and to the ends of justice. * * *

(2) The Commission is hereby authorized by its order to divide the members thereof into as many divisions (each to consist of not less than three members) as it may deem necessary, which may be changed from time to time. * * *

(4) In conformity with and subject to the order or orders of the Commission in the

premises, each division so constituted shall have power and authority by a majority thereof to hear and determine, order certify, report, or otherwise act as to any of said work, business, or functions so assigned or referred to it for action by the Commission, and in respect thereof the division shall have all the jurisdiction and powers now or then conferred by law upon the Commission, and be subject to the same duties and obligations. Any order, decision, or report made or other action taken by any of said divisions in respect of any matters so assigned or referred to it shall have the same force and effect, and may be made, evidenced, and enforced in the same manner as if made, or taken by the Commission, subject to rehearing by the Commission, as provided in section sixteen-a hereof for rehearing cases decided by the Commission. The secretary and seal of the Commission shall be the secretary and seal of each division thereof.

Section 16a:

That after a decision, order, or requirement has been made by the Commission in any proceeding any party thereto may at any time make application for rehearing of the same, or any matter determined therein, and it shall be lawful for the Commission in its discretion to grant such a rehearing if sufficient reason therefor be made to appear. Applications for rehearing shall be governed by such general rules as the Commission may establish. No such application shall excuse any carrier from complying with or obeying any decision, order, or requirement of the Commission, or operate in any manner to stay or postpone the enforcement thereof, without the special order of the Commission.

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In case a rehearing is granted the proceedings thereupon shall conform as nearly as may be to the proceedings in an original hearing, except as the Commission may otherwise direct; and if, in its judgment, after such rehearing and the consideration of all facts, including those arising since the former hearing, it shall appear that the original decision, order, or requirement is in any respect unjust or unwarranted, the Commission may reverse, change or modify, the same accordingly. Any decision, order, or requirement made after such rehearing, reversing, changing, or modifying the original determination shall be subject to the same provisions as an original order.

U. S. GOVERNMENT PRINTING OFFICE: 1934